

ACTIVITY BASED SAMPLING SUMMARY REPORT

PUBLIC RECEPTORS

LIBBY, MONTANA OPERABLE UNIT 6

LIBBY, MONTANA

Prepared For:



The BNSF Railway Company
825 Great Northern Boulevard, Suite 105
Helena, Montana



Prepared By:

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Project #: 5539-120



11 E. Superior St
Suite 260
Duluth, MN 55802
P: 218.625.2332
F: 218.625.2337
www.emr-inc.com

EXECUTIVE SUMMARY

The following document has been prepared to summarize the methods used and results of an Activity Based Sampling (ABS) event conducted in September 2008 at the request of the U.S. Environmental Protection Agency (EPA).

The ABS event was designed to evaluate potential exposure to two populations: BNSF Railway Company (BNSF) Maintenance of Way (MOW) Workers (Worker) and the general public (Public). This report will focus on the sampling and results conducted for the evaluation of the Public. Discussions of the sampling and results from the Worker assessment will be published under separate cover.

INTRODUCTION

The Libby asbestos site has been on the National Priorities List since 2002 and encompasses the towns of Libby and Troy, Montana, the former W.R. Grace mine-site and several other Operable Units (OU). Property owned by the BNSF Railway Company (BNSF) has been designated OU6 and is defined geographically by the BNSF property boundaries and extent of contamination associated with the railyard and other Right of Way (ROW). Generally OU6 is as wide as the ROW (CDM, 2008) with the western and eastern limits being defined by limits of OU7 and OU4, respectively (Figure 1).

In preparation for the 2008 ABS event the following documents were prepared to govern the sampling, analysis and safety aspects of the project:

- Public Receptor Sampling and Analysis Plan (Public SAP) (AECOM, 2008a);
- Worker Receptor Sampling and Analysis Plan (Worker SAP) (AECOM, 2008b);
- Project-specific Health and Safety Plan (HSP) (EMR, 2008); and
- SAP analytical summaries.

Collectively these documents served to provide guidance in the collection and analysis of samples and to govern health and safety procedures. The focus of this report will be methods and procedures defined in the Public SAP.

SAMPLING AND ANALYTICAL

Air and soil matrices were sampled during the Public portion of the ABS event. Personal air samples were collected from 2 different populations to evaluate the potential exposure risk of: 1) simulated Pedestrian Trespassers; and 2) simulated On-looker Trespassers. Stationary air samples were collected to monitor ambient air quality near the BNSF property boundaries. Soils were evaluated for visible vermiculite and laboratory samples collected to determine the magnitude of any soil impacts. Camp, Dresser and McKey (CDM) personnel provided sampling oversight on behalf of the EPA.

All air samples were submitted to CDM for analysis by EMSL Analytical, Inc. (EMSL) utilizing ISO 10312 methods. Soil samples were also submitted to CDM for preparation and eventual analysis by EMSL using Polarized Light Microscopy (PLM) Visual Estimation (VE) and PLM-Gravimetric methods for fine and coarse fractions, respectively.

RESULTS

A total of 22 stationary air samples and two (2) duplicates were collected and submitted for laboratory analysis. All samples met the target analytical sensitivity of 0.0024 structures/cubic centimeter. All samples were non-detect for Libby Amphibole (LA), Other Amphibole (OA) and Chrysotile.

A total of 7 simulated onlooker trespasser and 14 simulated pedestrian trespasser scenario air samples were collected during the seven day sampling event. All samples met the target analytical sensitivity. All simulated trespasser scenario air samples were non-detect.

A total of 8 blank samples were collected and submitted for analysis. Three of the blanks were not analyzed at the discretion of EMSL and were archived. All of the blanks were non-detect.

A total of 62 soil samples were collected and contained a fine fraction, which were analyzed via PLM-VE methods. A total of 18 QA/QC samples were prepared by CDM and submitted for PLM-VE analysis. All fine fraction samples, with the exception of RR-00022 and RR-00025, were non-detect for LA, OA and Chrysotile. Samples RR-00022 and RR-00025 contained 0.1% LA and were found in bin B1. Both samples were collected within the limits of the Kootenai Falls siding at BNSF MP 1331.5 (RR-00022) and MP 1331 (RR-00025).

Fifty (50) soil samples had a coarse fraction that was analyzed via PLM-Gravimetric methods. Additionally, 8 QA/QC samples were prepared by CDM and submitted for analysis. All samples were non-detect for LA, OA and Chrysotile.

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LIST OF ACRONYMS

ABS – Activity Based Sampling
BNSF – BNSF Railway Company
C – Chrysotile
CDM – Camp, Dresser and McKee
DGPS – Differential Geographic Positioning System
EMSL – EMSL Analytical, Inc
EPA – U.S. Environmental Protection Agency
FCO – Field Change Order
FSDS – Field Sampling Data Sheets
HSP – Health and Safety Plan
ISO – International Organization for Standardization
L/m – Liters per minute
LA – Libby Amphibole
MCE – Mixed Cellulose Ester
MP – Mile Post
NIOSH – National Institute for Occupational Safety and Health
OA – Other Amphibole
OU – Operable Unit
PCM – Phase Contrast Microscopy
PLM –VE – Polarized Light Microscopy – Visual Area Estimation
PLM-Grav – Polarized Light Microscopy – Gravimetric
PPE – Personal Protective Equipment
QA/QC - Quality Assurance/Quality Control
ROW – Right of Way
s/cc – Structures per cubic centimeter
SAP – Sampling and Analysis Plan
SOP – Standard Operating Procedure
TEM – Transmission Electron Microscopy
UTM – Universal Trans Mercator



1.0 SITE LOCATION

The Libby asbestos site has been on the National Priorities List since 2002 and encompasses the towns of Libby and Troy, Montana, the former W.R. Grace mine-site and several other Operable Units (OU). Property owned by the BNSF Railway Company (BNSF) has been designated OU6 and is defined geographically by the BNSF property boundaries and extent of contamination associated with the railyard and other Right of Way (ROW).

In general, OU6 is as wide as the ROW (CDM, 2007). Although no formal geographic boundaries have been established for the western or eastern limits of OU6, EPA's agent, Camp, Dresser and McKee (CDM) has used the limits of OU4 to define the east side boundary and the limits of OU7 defined the west side boundary (Figure 1) (CDM, 2007). These limits roughly correlate to BNSF Mile Post (MP) 1301.5 on the east to MP 1342 on the west (Figure 2).

OU6 is encompassed by BNSF's Kootenai River Subdivision that extends westward from Whitefish, Montana to Sandpoint, Idaho. Approximately 40 trains per day pass over the Kootenai River Subdivision. The portion of the Kootenai River subdivision within OU6 is single track with passing sidings that allow the passing of trains traveling in opposite directions. Passing sidings within OU6 are located at following locations (from east to west) (Figure 2):

- Riverview (MP 1306.9)
- Ripley (MP 1312.2)
- Libby (MP 1319.6)
- Kootenai Falls (MP 1331.3)
- Troy (MP 1337.9)

Two small railyards are present at Libby and Troy (Figure 2) and an industrial spur is present at the east end of Libby. From MP 1301.5 to approximately 1307.5 the BNSF ROW parallels Fisher River and then follows the Kootenai River from approximately MP 1307.5 to the west end of OU6 (Figure 2).



2.0 ABS PREPARATION

2.1 ABS Documents

In preparation for the 2008 Activity Based Sampling (ABS) event, a series of documents were prepared to govern the sampling, analysis and safety aspects of the project. The following is a brief description of purpose of each document that pertains to the Public Receptor portion of the ABS event.

2.1.1 PUBLIC RECEPTOR SAMPLING AND ANALYSIS PLAN

The Public Receptor Sampling and Analysis Plan (Public SAP) (AECOM, September 2008b) detailed the methods and procedures that were utilized during stationary air, simulated trespasser personal air and soil sampling. The Public SAP addressed public receptors that may be exposed to LA in air as a result of BNSF rail maintenance activities. Public receptors identified in the Public SAP included two simulated trespasser scenarios and near-by residents.

2.1.2 HEALTH AND SAFETY PLAN

A project-specific Health and Safety Plan (HSP) was developed to cover safety and Personal Protective Equipment (PPE) issues for personnel involved with the sampling activities (EMR, 2008). The HSP was not developed as a site specific plan since the work sites would be changing daily. In addition to the HSP, all sampling personnel attended daily BNSF safety briefing that included job specific details including planned work activities, area specific hazards and weather forecasts.

2.1.3 SAP ANALYTICAL SUMMARIES

A SAP analytical summary was developed for samples collected during the Public portion of the ABS. The analytical summary was approved by the EPA, EPA agents and contracted laboratories. The purpose of the analytical summary was to condense the analytical parameters specified in the Public SAP into an easily referenced guide for laboratory analysis of each matrix-specific sample group (i.e. personal air, stationary air and soil samples). The approved Public Receptor analytical summary is included in Appendix A.

2.2 Site Specific Procedures

Prior to initiating ABS sampling, EMR field staff received training from CDM related to visual estimation vermiculite concentrations in soils, soil sampling procedures and Field Sample Data Sheet (FSDS) procedures that are specific to the Libby Superfund Site. The visual estimation of vermiculite concentration training followed the procedures outlined in Standard Operating Procedure (SOP) CDM-Libby-06, Revision 1 – *Semi-Quantitative Visual Estimation of*,



Vermiculite in Soils at Residential and Commercial Properties (CDM, 2007). Soil sampling procedures followed SOP CDM-LIBBY-05, *Revision 2 – Soil Sample Collection at Residential and Commercial Properties* (CDM, undated). The FSDS training did not follow a specific SOP, but rather focused on the Libby-specific procedures to be followed for completion of FSDS forms and the submission of air and soil samples for analysis.

2.3 Sampling Methods and Equipment

The following is a discussion of the methods and equipment used during ABS to collect each sample media.

2.3.1 PERSONAL AIR SAMPLES

Personal air samples were collected for this portion of the ABS event to evaluate air quality for simulated trespasser scenarios. Three trespasser scenario air samples were collected each day of the sampling event. Personal air samples were collected using Gillian BDX II personal air pumps equipped with Zefon 25mm Phase Contrast Microscopy (PCM) cassettes with 0.8 μ m Mixed Cellulose Ester (MCE) filters. Personal air samples were collected at flow rates that ranged between 1.4 Liters/minute (L/m) and 2.8 L/m, as determined by testing with a calibrated rotameter at the beginning and ending of the day. These cassettes were utilized for both PCM analysis by National Institute for Occupational Safety and Health (NIOSH) Method 7400 and Transmission Electron Microscopy (TEM) analysis by the International Organization for Standardization (ISO) Method 10312. All personal air samples requiring fixed laboratory analysis were submitted to CDM for analysis by EMSL Analytical, Inc (EMSL). Copies of the FSDSs for the Public Receptor personal air samples are found in Appendix B.

2.3.2 STATIONARY AIR SAMPLES

Stationary air samples were collected to evaluate air quality near the BNSF property boundary. Stationary air samples were collected using EMS Megalite high-volume air pumps equipped with Zefon 25mm PCM cassettes with 0.8 μ m MCE filters. The filters were suspended approximately 4 feet above ground surface with the filter opening facing downward to prevent the deposition of foreign material on the filter. Stationary air pumps were checked and adjusted daily to achieve a flow rate of 7.6 L/m as determined with a calibrated rotameter. All stationary air samples were submitted to EMSL via CDM for TEM analysis via ISO 10312 methods. Copies of the FSDSs for stationary air samples are found in Appendix B.

Air sample field blanks were collected on a daily basis and submitted for analysis. In addition, two duplicate stationary samples (BA-00064 and BA-00068) were collected to evaluate laboratory accuracy.

2.3.3 SOIL SAMPLE COLLECTION

Discrete soil samples were collected from up to 15 locations per work area. The soil samples were collected to determine whether LA was present in exposed soils adjacent to the work areas. A stainless steel trowel was used to loosen and collect approximately 1 kilogram of soil between the ground surface and a depths between 4 inches and 6 inches. The samples were placed and submitted in one-gallon re-sealable plastic bags. The samples were labeled with a unique, pre-printed identification label established by CDM and cross-referenced with an identical identification label on the FSDS. The sample bag was placed inside a second labeled, re-sealable plastic bag.

The trowel used to collect soil samples was decontaminated between each sampling location and transported between sampling locations in a sealed zip-lock bag. The decontamination procedures used during the ABS differed slightly from those specified in the Public SAP and are discussed in section 6.2.

Each soil sample location was marked using high visibility survey tape to ensure that the sample locations could be found during Differential Geographic Positioning System (DGPS) surveying. Soil samples were submitted to CDM for separation and preparation before being shipped to the EMSL Libby, Montana laboratory for analysis. Following preparation by CDM, the samples were transported to EMSL for analysis via Polarized Light Microscopy Visual Area Estimation (PLM-VE) and PLM-Gravimetric (PLM-Grav) methods. Additional discussion of the soil analysis process is found in Section 4.1.3. Copies of the FSDSs for the soil samples are found in Appendix C.

During sample collection, the soils were evaluated for the presence of vermiculite using semi-quantitative methods referenced in Section 3.2. The purpose of estimation of visible vermiculite soil is to assist in the identification and delineation of visible vermiculite in soils without the collection of significant numbers of laboratory samples. During ABS visual estimation was incorporated to follow EPA standard operating procedures, but was not used as a substitute for laboratory analysis or to delineate the extent of visible vermiculite in soils.

All soil sampling locations were assigned a semi-quantitative estimate of visible vermiculite and categorized as none, low, medium (intermediate) or high according to the following criteria (CDM, 2007):

- None – no visible vermiculite
- Low – a maximum of a few flakes per sample location
- Medium (Intermediate) – Vermiculite easily observed throughout the sample location, including the surface.
- High – Vermiculite easily observed throughout the sample location, including the surface.

It should be noted that the description of the medium and high categories are identical in the reference document (CDM, 2007).

The results of the semi-quantitative estimation are discussed in Section 7.0.

2.3.4 METEOROLOGICAL DATA

On-site and local meteorological data was collected on a daily basis during the ABS event. On-site meteorological data was collected using a Met One AutoMet 3 data station and logging system. The station observed and recorded the following meteorological parameters:

- Barometric pressure (serial number U3918);
- Relative humidity and temperature (serial number U3209);
- Rainfall (serial number P8153);
- Wind speed and direction (serial number W3817)
- Datalogger (serial number F2211)

All the sensors were factory calibrated in September, 2008. The data logger was programmed to read all parameters at 30 second intervals. On-site meteorological data is presented in Appendix D.

2.3.5 LOCATION DATA

The Universal Trans Mercator (UTM) coordinates for soil sample, stationary air sample and meteorological station locations were determined using a Trimble Model GeoXH Differential Global Positioning System (DGPS) with sub-meter accuracy. This geospatial data was imported into Arc GIS to accurately locate the sample locations presented in Figures 4 through 10.



3.0 DOCUMENTATION PROGRAM

3.1 Field Notes

Two sets of field notes were collected by EMR personnel, one maintained by the soil sampling crew while the other was maintained by personnel outside the work area. These notes apply to both the Worker and Public Receptor portions of the ABS event and contain details regarding general field conditions, sample location information, soil descriptions, and timing of work completed. All notes were kept in bound field books and copies are found in Appendix E.

3.2 Field Sample Data Sheets

Information for each sample collected was logged on one of three types FSDSs that were provided by CDM: 1) personal air samples; 2) stationary air samples; and 3) soil samples. FSDSs were completed by EMR personnel using CDM-assigned sample numbering labels as well as sample specific data. Personal and stationary air sample FSDSs are found in Appendix B and soil sample FSDSs are found in Appendix C.

3.3 Meteorological Data

On-site meteorological data was collected on a daily basis during the ABS event as described in 3.3.4. Additionally, local meteorological data was downloaded daily from the USDA Forest Service Fire Weather Forecasting Station LBBM8, which is located on the southwest side of Libby, Montana. Both on-site and local meteorological data was uploaded daily to a field computer and backed up on an external hard drive. All meteorological data is presented in Appendix D.

4.0 SAMPLE ANALYSIS

4.1 Analytical Methods

All samples collected as part of the ABS event were submitted to the CDM Libby, Montana office. Upon approval of the analytical summary sheets, CDM generated chain of custody forms and submitted all air matrix samples to EMSL's Libby, Montana laboratory. All soil samples were submitted to CDM's Denver facility for preparation and then forwarded to EMSL for analysis. The following is a brief discussion of the analytical methods used in the analysis of the ABS samples.

4.1.1 TEM ANALYSIS

Worker, simulated trespasser and stationary air samples were submitted for TEM analysis using the ISO 10312 methodology. This method determines and counts the type(s) of asbestos structure present, but sometimes cannot discriminate between individual fibers of amphibole and non-asbestos analogues of the same amphibole mineral. The method categorizes structures of various lengths and widths into "bins" to count the various fractions of LA, OA and Chrysotile (C). The method specifies six bins that are characterized as follows:

- Bin A: All LA, OA and C fibers with a length to width aspect ratio less than 5:1;
- Bin B: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1 and length less than 0.5 μm ;
- Bin C: All LA, OA and C fibers with an a length to width aspect ratio greater than or equal to 5:1 and width less than or equal to 0.5 μm ;
- Bin D: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, with fiber length between 0.5 μm and 5 μm ;
- Bin E: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, length between 5 and 10 microns and width less than or equal to 0.5 μm ; and
- Bin F: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, length greater than 10 μm and width less than or equal to 0.5 μm .

Results are expressed in units of structures per cubic centimeter (s/cc) (Table 1).

All air samples collected as part of the Public portion of the ABS event were directly prepared.

4.1.2 PLM-VE/PLM-GRAVIMETRIC ANALYSIS

Samples of soil and soil-like materials collected as part of the Libby Superfund Site are prepared by CDM for analysis of LA by separation of coarse fraction and fine fraction materials using a ¼-inch sieve. Coarse fraction materials (greater than ¼-inch in diameter) are retained during sieving and fine fraction materials (less than ¼-inch in diameter) pass through the sieve. Each of these fractions is then analyzed for LA as follows (USEPA, 2008):



- The coarse fraction is analyzed using stereomicroscopy and Polarized Light Microscopy (PLM) to identify coarse particles that are asbestos, and estimating the mass percent by weighing those asbestos particles gravimetrically.
- The fine fraction is ground to less than or equal to 250 μm particle size and is evaluated by PLM-VE to estimate the mass fraction for LA using site-specific reference material as a frame of reference.

Soil results are expressed in % mass in Tables 2 and 3.

5.0 SAMPLING PROGRAM

5.1 Sampling Areas

EMR personnel consulted with the BNSF RP-15 and RP-21 Roadmasters on a daily basis to determine the planned activities and the exact work area in which sampling would take place. The work areas moved daily and sampling areas were dependant on several factors including the following:

- Maintenance Project Duration – projects that would be completed in less than 3 hours were not targeted for soil or stationary air sampling since the job duration would be of insufficient length to collect an acceptable volume of air;
- Work Site Accessibility – remote projects were excluded since equipment needed for sampling had to be carried to the work site;
- Planned Maintenance Activities – sampling was biased towards maintenance activities associated with wooden ties due to the more invasive nature of the work. However a mixture of wood and concrete tie work was sampled to determine potential exposures for both sets of activities.

5.2 Deviations from SAP

The ABS event was conducted in accordance with the procedures described in the Public SAPs except when field conditions warranted a deviation. The following is a discussion of deviations from the SAPs that were incorporated into the sampling process based on field conditions. All deviations were documented on Field Change Order (FCO) forms, which are found in Appendix F. Many of the deviations resulted from determining actual field conditions versus those speculated during the SAP development.

- FCO #17-1: A flow rate of 5 L/m could not be achieved with the personal pumps. Reduced flow rates increased the duration of sampling events from 4 hours to 8 hours.
- FCO #17-2: The SAP specified the collection of samples from two on-looker trespassers. Due to personnel limitations only one on-looker trespasser was sampled.
- FCO #17-3: The SAP assumed that no train traffic would pass through the sampling area. On day 1 train traffic was allowed to pass through the sampling area during maintenance and sampling activities. All subsequent trains passing through the sampling area were recorded in the field book.
- FCO #17-4: The SAP specified that the simulated pedestrian trespasser would be sampled away from maintenance activities. Due to manpower limitations the simulated pedestrian trespassers spent the majority of the sampling period in areas where maintenance activity was occurring.
- FCO #17-5: The SAP specified that composite soil samples would be collected and sampling equipment would be wrapped in tin foil between sample locations. Discrete soil samples were collected and sampling equipment was decontaminated between sample locations, dried and placed in a clean zip-lock bag.

- FCO #17-6: Worker sampling event duration is variable and is not under the control of the sampling team. The SAP called for maximum sample duration of 4 hours for workers. Pumps were placed on workers at the beginning of a shift and retrieved at the end of the shift. The increased duration may result in filter overloading.
- FCO #18-1: The Day 2 maintenance area was shorter than Day 1 and less area had exposed soil. The number of soil samples was reduced from 15 to 9 due to reduced track protection time and the lack of exposed soil.
- FCO #18-2: Assessed and reduced worker air sample flow rate from 2.8L/m to 1.0 L/m to reduce filter overloading.
- FCO #18-3: Day 1 field setting was extremely dry and significant dust was created by vehicles passing through the sampling area on an adjacent access road. Day 2 conditions featured the same soil moisture conditions but overall dust levels were lower since this site did not have an access road.
- FCO #19-1: Scheduled maintenance was less than 1,000 feet in length with an expected duration of 2 to 3 hours. The sampling plan was modified to account for the short length and duration.
- FCO #22-1: The SAP called for a suspension of work during precipitation events. The SAP was modified to continue sampling during the light to moderate rainfall event that occurred this day.

Since the FCOs represent actual field conditions, these deviations will likely be incorporated into future ABS events and SAP revisions.

5.3 Personal Air Sampling

Two potential public receptor exposure scenarios were evaluated with personal air sampling techniques. The public receptor scenarios consisted of: 1) simulated pedestrian trespassers; and 2) simulated on-looker trespasser and are discussed below. All personal air samples were collected using the equipment and procedures described in Section 3.3.1. The collection locations of personal air samples are not depicted on Figures 4-10 since the sampled personnel were not stationary.

5.3.1 SIMULATED PEDESTRIAN TRESSPASSER SAMPLING

Two personal air samples were collected each work day to evaluate the potential exposure of two simulated trespassers walking single file down the BNSF right-of-way (ROW). As stated in Section 6.2, this scenario was outlined in the SAP to be executed outside of the maintenance work zone. Due to personnel limitations these samples were collected from the breathing zone of EMR personnel that spent considerable time within the maintenance work zone and were tasked with soil sample collection.

5.3.2 SIMULATED ON-LOOKER TRESPASSER SAMPLING

One personal air sample was collected each work day to evaluate the potential exposure of a single simulated trespasser observing the maintenance activities from BNSF property but not on



the immediate ROW. These samples were collected from the breathing zone of EMR personnel that spent the majority of their time outside the maintenance work zone.

5.4 Stationary Air Sampling

Stationary air sampling was done to assess potential exposure to airborne asbestos fibers originating from rail maintenance activities and migrating off the immediate ROW. A total of 2 to 4 stationary air samples were collected each sampling day with the number of samples being dependent on the length of the work area. The stationary air samples were placed within the maintenance work zone on both sides of the mainline to evaluate air both upwind and downwind air quality. Stationary air sampling locations where four (4) air samples were collected, the samples were laid out in a rectangular pattern measuring approximately 75 feet by 100 feet with the long axis of the rectangle being parallel to the tracks. In areas where only two (2) stationary air samples were collected, one (1) sample was collected from both sides of the tracks. Stationary air sample locations are depicted on Figures 4 through 10.

5.5 Soil Sampling

Discrete soil samples locations were evenly spaced at intervals that ranged from approximately 40 to 320 feet. The spacing was dependant on the length of the work area and the availability of exposed soil. Areas that did not have exposed soil (i.e. covered with ballast) were not sampled. Soil samples were collected from the soil surface nearest the track on which the work was occurring. Soil samples were collected from one side or both sides of the track depending on the track configuration and availability of exposed soil. Soil sample locations are depicted on Figures 4 through 10.

5.6 Sample Identification Numbers

All samples were assigned a unique sample identification consisting of a prefix followed by a five digit number that signify the order in which the samples were collected. All sample identifications were pre-assigned by CDM. Air samples were designated by a BA prefix while soil samples were designated by a RR prefix. The Location IDs used during the collection of both air (AD-005568) and soil samples (SP-138460) were also assigned by CDM.

6.0 SAMPLING SUMMARY

The following is a discussion of the work areas and daily sampling activities that occurred during the Public Receptor portion of the ABS event. The following discussion contains gaps in the personal air sampling numbering since additional samples were collected during the Worker Receptor portion of the ABS event. The results of this sampling are discussed under separate cover in the *Activity Based Sampling Summary Report – Worker Receptors* (EMR, 2010).

6.1 September 17, 2008

Sampling focused on RP-15 that was relaying approximately 2,000 feet of rail on wood ties at MP 1312, approximately 7.5 miles east of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00003 and BA-00004;
- One (1) simulated on-looker trespasser personal air sample BA-00005;
- Four (4) stationary air samples BA-00006 through BA-00009;
- One (1) air sample blank BA-00010;
- Fifteen (15) soil samples RR-00001 through RR-00015.

No visible vermiculite was observed in soil samples RR-00001, RR-00006 through RR-00008, RR-00013 and RR-00015. The remaining nine (9) soil samples were classified as containing low amounts of vermiculite (Table 2). Stationary air and soil sampling locations are depicted on Figure 4.

6.2 September 18, 2008

Sampling focused on RP-15 that was replacing approximately 2,900 feet of rail on wooden ties at Kootenai Falls Siding (MP 1331.5). This work site was approximately 12½ miles west of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00013 and BA-00014;
- One (1) simulated on-looker trespasser personal air sample BA-00015;
- Four (4) stationary air samples BA-00016 through BA-00019;
- One (1) air sample blank BA-00020;
- Eight (8) soil samples RR-00016 through RR-00023.



No visible vermiculite was observed in soil samples RR-00016 through RR-00019. Low concentrations of visible vermiculite were observed in soil samples RR-00020 through RR-00023 (Table 2). Stationary air and soil sampling locations are depicted on Figure 7.

6.3 September 19, 2008

Sampling focused on RP-15 that replaced 610 feet of rail on wooden ties at Kootenai Falls Siding (MP 1331). This work site was approximately 12 miles west of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00023 and BA-00024;
- One (1) simulated on-looker trespasser personal air sample BA-00025;
- Two (2) stationary air samples BA-00026 and BA-00028;
- One (1) air sample blank BA-00027;
- Six (6) soil samples RR-00025 through RR-00030

The number of stationary air samples and soil samples was reduced on this site due to the short length of the project. No visible vermiculite was observed in any of the soil samples (Table 2). Stationary air and soil sampling locations are depicted on Figure 6.

6.4 September 22, 2008

Sampling focused on RP-15 that replaced 1,400 feet of rail on wooden ties east of Kootenai Falls Siding (MP 1329.5). This work site was approximately 10 miles west of Libby (Figure 3).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00031;
- Two (2) simulated pedestrian trespasser personal air samples BA-00032 and BA-00033;
- Two (2) stationary air samples BA-00034 and BA-00035;
- One (1) air sample blank BA-00036;
- Eight (8) soil samples RR-00031 through RR-00038.

Visible vermiculite was observed in only one soil sample (RR-00036) and was classified as low concentration (Table 2). Stationary air and soil sampling locations are depicted on Figure 5.

6.5 September 23, 2008

Sampling focused on RP-21 that replaced 1,000 feet of rail on concrete ties at the east end of Troy (MP 1337). This work site was approximately 1 mile east of Troy (Figure 3).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00039;
- Two (2) simulated pedestrian trespasser personal air samples BA-00040 and BA-00041;
- Two (2) stationary air samples BA-00044 and BA-00045;
- One (1) air sample blank BA-00046;
- Eight (8) soil samples RR-00039 through RR-00046.

No visible vermiculite was observed in soil sample RR-00040. However, visible vermiculite was observed in soil samples RR-00039, RR-00041 through RR-00045 and were classified as low concentration. Additionally, soil sample RR-00046 contained visible vermiculite and was classified as medium concentration (Table 2). Stationary air and soil sampling locations are depicted on Figure 8.

6.6 September 24, 2008

Sampling focused on RP-21 that replaced 1,300 feet of rail on concrete ties at the east end of the BNSF Troy yard (MP 1339.5). This work site was approximately 1.5 miles west of Troy (Figure 9).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00049;
- Two (2) simulated pedestrian trespasser personal air samples BA-00050 and BA-00051;
- Four (4) stationary air samples BA-00052 and BA-00055;
- Two (2) air sample blanks BA-00056 and BA-00057;
- 9 soil samples RR-00047 through RR-00055.

No visible vermiculite was observed in soil samples RR-00047 through RR-00049, but low concentrations were observed in samples RR-00050 through RR-00055. Stationary air and soil sampling locations are depicted on Figure 10. This project completed RP-21's work within OU6.

6.7 September 25, 2008

Sampling focused on RP-15 that replaced 600 feet of rail on wooden ties east of the Troy (MP 1341). This work site was approximately 3.6 miles west of Troy (Figure 2).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00060;
- Two (2) simulated pedestrian trespasser personal air samples BA-00061 and BA-00062;
- Four (4) stationary air samples BA-00064 and BA-00067;
- One (1) duplicate stationary air sample BA-00068;



- One (1) air sample blank BA-00069;
- 7 soil samples RR-00056 through RR-00062.

Visible vermiculite was not observed in any of the soil samples. Stationary air and soil sampling locations are depicted on Figure 10. This project completed RP-15's work within OU6.

7.0 DISCUSSION OF RESULTS

Air sample results are summarized in Table 1 and complete laboratory reports and chain of custody forms are found in Appendix G. Soil sample results are summarized in Tables 2 and 3 and complete laboratory reports and chain-of-custody forms are found in Appendix H.

7.1 Stationary Air Sampling Results

A total of 22 stationary air samples and two (2) duplicates were collected and submitted for laboratory analysis using ISO 10312 methods. Analytical sensitivity for these samples ranged from 0.000397 s/cc to 0.0024 s/cc. All samples met the target analytical sensitivity. All samples were non-detect for LA, OA and Chrysotile (Table 1).

7.2 Simulated Trespasser Scenario Air Sampling Results

A total of seven (7) simulated onlooker trespasser and 14 simulated pedestrian trespasser scenario air samples were collected. All simulated trespasser samples were submitted for analysis using ISO 10312 methodology and analytical sensitivity ranged from 0.000967 s/cc to 0.00125 s/cc. All samples met the target analytical sensitivity. All simulated trespasser scenario air samples were non-detect (Table 1).

7.3 Air Sample Blank Results

A total of 8 blank samples were collected and submitted for analysis. Three of the blanks were not analyzed at the discretion of EMSL and were archived. All of the blanks that were analyzed resulted in non-detection of LA, OA and Chrysotile (Table 1).

7.4 Soil Sample Analysis

Each soil sample was sieved and subdivided into fine and coarse fraction by CDM as described in Section 5.1.3. The following is a discussion of the results of analysis of each of these fractions.

7.4.1 FINE FRACTION ANALYSIS

A total of 61 soil samples were collected during the ABS event. All samples contained a fine fraction, which was analyzed via PLM-VE methods. A total of 18 Quality Assurance/Quality Control (QA/QC) samples were prepared by CDM and submitted for PLM-VE analysis. All samples, with the exception of RR-00022 and RR-00025, were non-detect for LA, OA and Chrysotile. Samples RR-00022 and RR-00025 contained 0.1% LA and were found in bin B1. Both samples were collected within the limits of the Kootenai Falls siding at BNSF MP 1331.5



(RR-00022) and MP 1331 (RR-00025). These locations are depicted on Figures 7 and 6, respectively.

7.4.2 COARSE FRACTION ANALYSIS

A total of 50 samples had coarse fractions that were analyzed via PLM-Gravimetric methods. Additionally, 8 QA/QC samples were prepared by CDM and submitted for analysis. All samples were non-detect for LA, OA and Chrysotile (Table 3).



8.0 REFERENCES

AECOM, 2008a, *Rail Maintenance Worker Receptor Activity-Based Sampling and Analysis Plan - Operable Unit 6*. October, 2008

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EMR, 2010, *Activity Based Sampling Summary Report – Worker Receptors*. March, 2010.

USEPA, 2008, *Procedure for Combining Mass Fraction Estimates of Libby Amphibole for the Coarse and Fine Fractions of Soil and Soil-Like Samples at the Libby Asbestos Site – Technical Memo 8*. February 21, 2008.



9.0 STANDARD OF CARE

The data generated and conclusions provided are based upon the scope of work performed. All work was conducted in a manner consistent with customary principles in the fields of science and engineering. EMR is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report. No other warranty, expressed or implied, is made.

The results reported and any opinions reached by EMR are for the benefit of the client and unless agreed to by EMR in writing, are not to be disclosed to or relied upon by any third party. The results and opinions set forth by EMR in this report will be valid as of the date of the report. EMR assumes no obligation to advise you of any changes that may later be brought to our attention.

EMR, Inc., as environmental consultants, respectfully submits this report.

The preceding report was prepared and reviewed by the following EMR personnel.

Author:

A handwritten signature in black ink, appearing to read "Scott Carney".

Scott Carney, PG, CHMM
Senior Geologist

March 12, 2010
Date

Reviewed By:

A handwritten signature in black ink, appearing to read "Dave Welch".

Dave Welch, L.G.
Project Geologist

March 12, 2010
Date



TABLES

Table 1. Summary of ABS Air Sampling Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Sample Group	Sample Date	Analysis Date	Sample Type	Volume (L)	Sensitivity	Libby Amphibole s/cc	Other Amphibole s/cc	Chrysotile s/cc	Personnel Name	Job	Milepost
BA-00003	Property	9/17/2008	11/12/2008	Pedestrian	933	0.000814	<DL	<DL	<DL	Amanda Thornton	EMR	1312
BA-00004	Property	9/17/2008	11/12/2008	Pedestrian	991	0.000766	<DL	<DL	<DL	Dave Welch	EMR	1312
BA-00005	Property	9/17/2008	11/6/2008	On-Looker	1028	0.000993	<DL	<DL	<DL	Matt Lenz	EMR	1312
BA-00006	SP-138440	9/17/2008	10/31/2008	Stationary	1778	0.0024	<DL	<DL	<DL	NA	NA	1312
BA-00007	SP-138441	9/17/2008	10/31/2008	Stationary	1763	0.0024	<DL	<DL	<DL	NA	NA	1312
BA-00008	SP-138442	9/17/2008	10/31/2008	Stationary	2440	0.00202	<DL	<DL	<DL	NA	NA	1312
BA-00009	SP-138443	9/17/2008	10/31/2008	Stationary	2402	0.00205	<DL	<DL	<DL	NA	NA	1312
BA-00010	Blank	9/17/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1312
BA-00013	AD-005568	9/18/2008	11/12/2008	Pedestrian	977	0.000777	<DL	<DL	<DL	Dave Welch	EMR	1331.5
BA-00014	AD-005568	9/18/2008	11/12/2008	Pedestrian	942	0.000806	<DL	<DL	<DL	Amanda Thornton	EMR	1331.5
BA-00015	AD-005568	9/18/2008	11/6/2008	On-Looker	938	0.000987	<DL	<DL	<DL	Matt Lenz	EMR	1331.5
BA-00016	SP-138444	9/18/2008	10/31/2008	Stationary	2675	0.00221	<DL	<DL	<DL	NA	NA	1331.5
BA-00017	SP-138445	9/18/2008	10/31/2008	Stationary	2675	0.00221	<DL	<DL	<DL	NA	NA	1331.5
BA-00018	SP-138446	9/18/2008	10/31/2008	Stationary	2538	0.00233	<DL	<DL	<DL	NA	NA	1331.5
BA-00019	SP-138447	9/18/2008	10/31/2008	Stationary	2523	0.00235	<DL	<DL	<DL	NA	NA	1331.5
BA-00020	Blank	9/18/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1331.5
BA-00023	AD-005568	9/19/2008	11/12/2008	Pedestrian	960	0.000791	<DL	<DL	<DL	Dave Welch	EMR	1331
BA-00024	AD-005568	9/19/2008	11/12/2008	Pedestrian	953	0.000797	<DL	<DL	<DL	Amanda Thornton	EMR	1331
BA-00025	AD-005568	9/19/2008	11/6/2008	On-Looker	988	0.000967	<DL	<DL	<DL	Matt Lenz	EMR	1331
BA-00026	SP-138448	9/19/2008	10/31/2008	Stationary	1961	0.00216	<DL	<DL	<DL	NA	NA	1331
BA-00027	Blank	9/19/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1331
BA-00028	SP-138449	9/19/2008	10/31/2008	Stationary	1968	0.00215	<DL	<DL	<DL	NA	NA	1331
BA-00031	AD-005568	9/22/2008	11/6/2008	On-Looker	779	0.000975	<DL	<DL	<DL	Matt Lenz	EMR	1329.8
BA-00032	AD-005568	9/22/2008	11/12/2008	Pedestrian	780	0.000974	<DL	<DL	<DL	Amanda Thornton	EMR	1329.8
BA-00033	AD-005568	9/22/2008	11/12/2008	Pedestrian	658	0.00115	<DL	<DL	<DL	Dave Welch	EMR	1329.8
BA-00034	SP-138450	9/22/2008	10/31/2008	Stationary	1718	0.00215	<DL	<DL	<DL	NA	NA	1329.8
BA-00035	SP-138451	9/22/2008	10/31/2008	Stationary	1718	0.00215	<DL	<DL	<DL	NA	NA	1329.8
BA-00036	Blank	9/22/2008	Archived	Blank	0	Blank	0	0	0	NA	NA	1329.8
BA-00039	AD-005568	9/23/2008	11/6/2008	On-Looker	817	0.00098	<DL	<DL	<DL	Matt Lenz	EMR	1337
BA-00040	AD-005568	9/23/2008	11/13/2008	Pedestrian	780	0.00237	<DL	<DL	<DL	Amanda Thornton	EMR	1337
BA-00041	AD-005568	9/23/2008	11/13/2008	Pedestrian	718	0.00229	<DL	<DL	<DL	Dave Welch	EMR	1337
BA-00044	SP-138454	9/23/2008	11/14/2008	Stationary	1915	0.000397	<DL	<DL	<DL	NA	NA	1337
BA-00045	SP-138455	9/23/2008	11/5/2008	Stationary	1915	0.000397	<DL	<DL	<DL	NA	NA	1337
BA-00046	AD-005568	9/23/2008	Archived	Blank	-	-	-	-	-	NA	NA	1337

Table 1. Summary of ABS Air Sampling Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Sample Group	Sample Date	Analysis Date	Sample Type	Volume (L)	Sensitivity	Libby Amphibole s/cc	Other Amphibole s/cc	Chrysotile s/cc	Personnel Name	Job	Milepost
BA-00049	AD-005568	9/24/2008	11/6/2008	On-Looker	803	0.000997	<DL	<DL	<DL	Matt Lenz	EMR	1339.5
BA-00050	AD-005568	9/24/2008	11/13/2008	Pedestrian	806	0.0023	<DL	<DL	<DL	Amanda Thornton	EMR	1339.5
BA-00051	AD-005568	9/24/2008	11/13/2008	Pedestrian	791	0.0022	<DL	<DL	<DL	Dave Welch	EMR	1339.5
BA-00052	SP-138456	9/24/2008	11/5/2008	Stationary	1626	0.000467	<DL	<DL	<DL	NA	NA	1339.5
BA-00053	SP-138457	9/24/2008	11/5/2008	Stationary	1619	0.000469	<DL	<DL	<DL	NA	NA	1339.5
BA-00054	SP-138458	9/24/2008	11/5/2008	Stationary	1634	0.000465	<DL	<DL	<DL	NA	NA	1339.5
BA-00055	SP-138459	9/24/2008	11/5/2008	Stationary	1634	0.000465	<DL	<DL	<DL	NA	NA	1339.5
BA-00056	AD-005568	9/24/2008	Archived	Blank	0	-	-	-	-	NA	NA	1339.5
BA-00057	AD-005568	9/24/2008	Archived	Blank	0	-	-	-	-	NA	NA	1339.5
BA-00060	AD-005568	9/25/2008	11/6/2008	On-Looker	608	0.00125	<DL	<DL	<DL	Matt Lenz	EMR	1341
BA-00061	AD-005568	9/25/2008	11/13/2008	Pedestrian	630	0.00235	<DL	<DL	<DL	Amanda Thornton	EMR	1341
BA-00062	AD-005568	9/25/2008	11/13/2008	Pedestrian	602	0.00234	<DL	<DL	<DL	Dave Welch	EMR	1341
BA-00063	SP-138460	9/25/2008	NS	Stationary	1170	-	-	-	-	NA	NA	1341
BA-00064	SP-138460	9/25/2008	11/5/2008	Stationary ¹	1170	0.000649	<DL	<DL	<DL	NA	NA	1341
BA-00065	SP-138461	9/25/2008	11/5/2008	Stationary	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00066	SP-138462	9/25/2008	11/5/2008	Stationary	1170	0.000649	<DL	<DL	<DL	NA	NA	1341
BA-00067	SP-138463	9/25/2008	11/5/2008	Stationary	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00068	SP-138464	9/25/2008	11/5/2008	Stationary ²	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00069	AD-005568	9/25/2008	11/6/2008	Blank	0	Blank	0	0	0	NA	NA	1341

NA - Not Applicable

DL - Detection Limits

NS - Not Submitted due to damage to filter

Archived - Blank archived by CDM

1 - Colocated with BA-000063

2 - Colocated with BA-00067

Table 2. Summary of Soil Sampling PLM-VE (Fine Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole %	Bin	Other Amphibole %	Chrysotile %	Visible Vermiculite	Milepost
September 17, 2008 - 15 samples										
RR-00001	SP-138460	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00002	SP-138461	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00003	SP-138462	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00004	SP-138463	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00005	SP-138464	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00006	SP-138465	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00007	SP-138466	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00008	SP-138467	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00009	SP-138468	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00010	SP-138469	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00011	SP-138470	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00012	SP-138471	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00013	SP-138472	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00014	SP-138473	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00015	SP-138474	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
September 18, 2008 - 9 samples										
RR-00016	SP-138475	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00017	SP-138476	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00018	SP-138477	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00019	SP-138478	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00020	SP-138479	Property	9/18/2008	4/27/2009	ND	A	ND	ND	Low	1331.5
RR-00021	SP-138480	Property	9/18/2008	4/27/2009	ND	A	ND	ND	Low	1331.5
RR-00022	SP-138481	Property	9/18/2008	4/28/2009	0.1	B1	ND	ND	Low	1331.5
RR-00023	SP-138482	Property	9/18/2008	4/28/2009	ND	A	ND	ND	Low	1331.5
RR-00024	SP-138483	Not Used	9/18/2008	4/28/2009	NA	NA	NA	NA	NA	1331.5
September 19, 2008 - 6 samples										
RR-00025	SP-138484	Property	9/19/2009	4/28/2009	0.1	B1	ND	ND	None	1331
RR-00026	SP-138485	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00027	SP-138486	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00028	SP-138487	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00029	SP-138488	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00030	SP-138489	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
September 22, 2008 - 8 samples										
RR-00031	SP-138490	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00032	SP-138491	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00033	SP-138492	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00034	SP-138493	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00035	SP-138494	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00036	SP-138495	Property	9/22/2009	4/28/2009	ND	A	ND	ND	Low	1329.8
RR-00037	SP-138496	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00038	SP-138497	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8

Table 2. Summary of Soil Sampling PLM-VE (Fine Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole %	Bin	Other Amphibole %	Chrysotile %	Visible Vermiculite	Milepost
September 23, 2008 - 8 samples										
RR-00039	SP-138498	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00040	SP-138499	Property	9/23/2009	4/28/2009	ND	A	ND	ND	None	1337
RR-00041	SP-138500	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00042	SP-138501	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00043	SP-138502	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00044	SP-138503	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00045	SP-138504	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00046	SP-138505	Property	9/23/2009	4/29/2009	ND	A	ND	ND	Medium	1337
September 24, 2008 - 9 samples										
RR-00047	SP-138506	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00048	SP-138507	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00049	SP-138508	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00050	SP-138509	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00051	SP-138510	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00052	SP-138511	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00053	SP-138512	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00054	SP-138513	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00055	SP-138514	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
September 25, 2008 - 7 samples										
RR-00056	SP-138515	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00057	SP-138516	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00058	SP-138517	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00059	SP-138518	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00060	SP-138519	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00061	SP-138520	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00062	SP-138520	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
CDM QA/QC - 18 samples										
RR-00201	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00202	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00203	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00204	NA	QA Sample	11/3/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00205	NA	QA Sample	11/4/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00206	NA	QA Sample	11/4/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00207	NA	QA Sample	4/13/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00208	NA	QA Sample	4/14/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00209	NA	QA Sample	4/14/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00210	NA	QA Sample	4/14/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00211	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00212	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00213	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00214	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00215	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00216	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00217	NA	QA Sample	4/21/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00218	NA	QA Sample	4/21/2009	4/30/2009	ND	A	ND	ND	NA	NA

NA - Not Applicable

RR-002XX series samples are QA/QC samples generated by CDM during soil sample preparation

Table 3. Summary of Soil Sampling PLM-Gravimetric (Coarse Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole Quantity	Other Amphibole Quantity	Chrysotile Quantity	Milepost
September 17, 2008 - 8 samples								
RR-00001	SP-138460	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00002	SP-138461	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00005	SP-138464	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00011	SP-138470	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00012	SP-138471	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00013	SP-138472	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00014	SP-138473	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00015	SP-138474	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
September 18, 2008 - 8 samples								
RR-00016	SP-138475	Property	9/18/2008	4/30/2009	ND	ND	ND	1331.5
RR-00017	SP-138476	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00018	SP-138477	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00019	SP-138478	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00020	SP-138479	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00021	SP-138480	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00022	SP-138481	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00023	SP-138482	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
September 19, 2008 - 5 samples								
RR-00025	SP-138484	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00027	SP-138486	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00028	SP-138487	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00029	SP-138488	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00030	SP-138489	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
September 22, 2008 - 7 samples								
RR-00031	SP-138490	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00032	SP-138491	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00033	SP-138492	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00034	SP-138493	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00035	SP-138494	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00036	SP-138495	Property	9/22/2009	5/4/2009	ND	ND	ND	1329.8
RR-00037	SP-138496	Property	9/22/2009	5/4/2009	ND	ND	ND	1329.8
September 23, 2008 - 8 samples								
RR-00039	SP-138498	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00040	SP-138499	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00041	SP-138500	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00042	SP-138501	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00043	SP-138502	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00044	SP-138503	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00045	SP-138504	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00046	SP-138505	Property	9/23/2009	5/4/2009	ND	ND	ND	1337

Table 3. Summary of Soil Sampling PLM-Gravimetric (Coarse Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole Quantity	Other Amphibole Quantity	Chrysotile Quantity	Milepost
September 24, 2008 - 8 samples								
RR-00047	SP-138506	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00048	SP-138507	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00050	SP-138509	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00051	SP-138510	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00052	SP-138511	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00053	SP-138512	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00054	SP-138513	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00055	SP-138514	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
September 25, 2008 - 7 samples								
RR-00056	SP-138515	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00057	SP-138516	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00058	SP-138517	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00059	SP-138518	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00060	SP-138519	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00061	SP-138520	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00062	SP-138520	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
September 26, 2008 - 8 samples								
RR-00203	NA	QA Sample	10/31/2008	5/4/2009	ND	ND	ND	NA
RR-00206	NA	QA Sample	11/4/2008	5/4/2009	ND	ND	ND	NA
RR-00209	NA	QA Sample	4/14/2009	5/4/2009	ND	ND	ND	NA
RR-00212	NA	QA Sample	4/15/2009	5/4/2009	ND	ND	ND	NA
RR-00215	NA	QA Sample	4/17/2009	5/4/2009	ND	ND	ND	NA
RR-00216	NA	QA Sample	4/17/2009	5/4/2009	ND	ND	ND	NA
RR-00217	NA	QA Sample	4/21/2009	5/4/2009	ND	ND	ND	NA
RR-00218	NA	QA Sample	4/21/2009	5/4/2009	ND	ND	ND	NA

NA - Not Applicable

ND - Not Detected

RR-002XX series samples are QA/QC samples generated by CDM during soil sample preparation



FIGURES

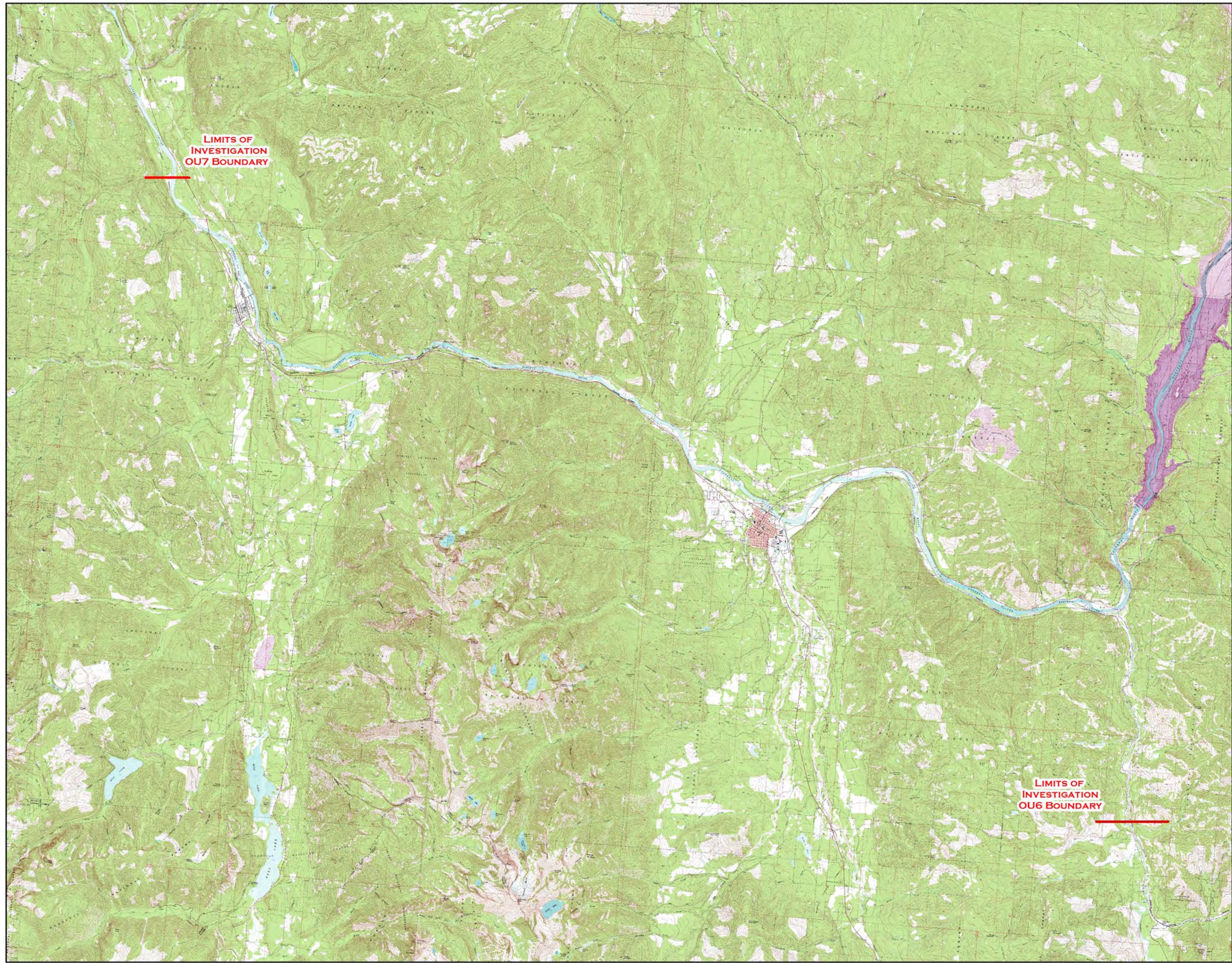
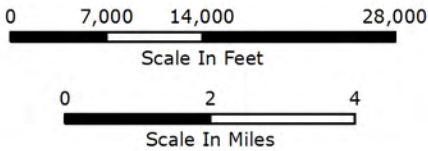


Figure 1
Site Location Map

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana



Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: Lincoln Topo MDRNRCS



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Duluth, MN 55802
Phone: 218.625.2332
Fax: 218.625.2337



Figure 2
OU6 Overview Map Showing
Commonly Referenced Features

Activity Based Sampling
Summary Report

--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Approximate Milepost Locations
- Rail Sidings
- BNSF Railway
- BNSF Yard

0 7,000 14,000 28,000

Scale In Feet

0 2 4

Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
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Reference: 2006 Lincoln Aerial



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Duluth, MN 55802
Phone: 218.625.2332
Fax: 218.625.2337

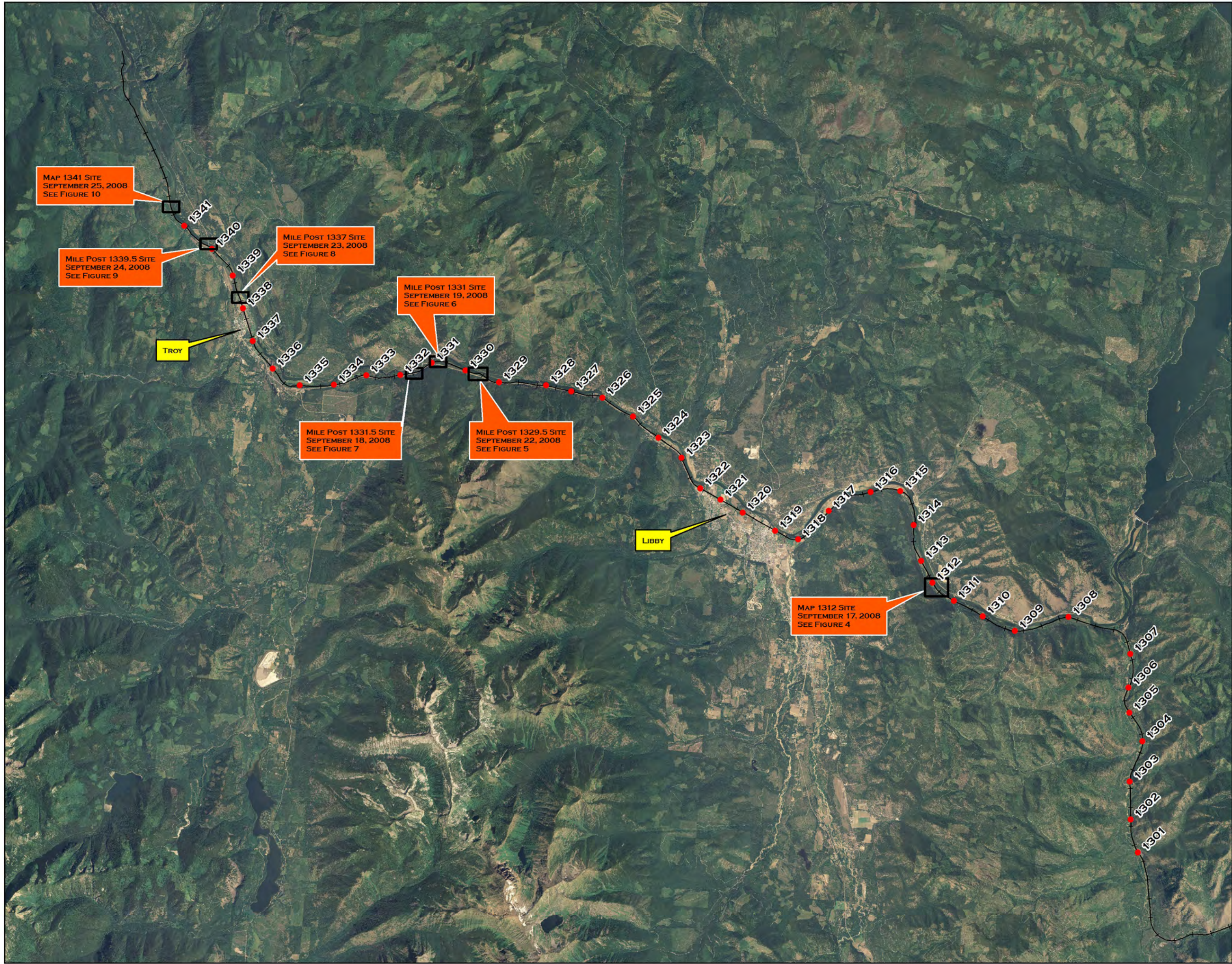


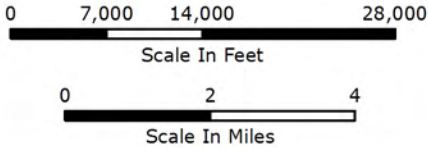
Figure 3
Sampling Index Map

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Approximate Milepost Locations
- BNSF Railway



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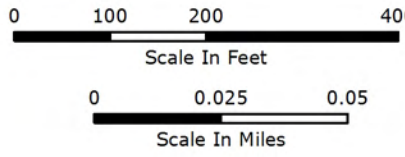
Figure 4
MP 1312
Sampling Location
September 17, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



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Duluth, MN 55802
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Fax: 218.625.2337



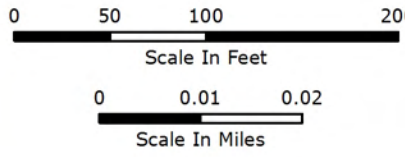
Figure 5
MP 1329.5
Sampling Location
September 22, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



Project Number: 5539-140
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Duluth, MN 55802
Phone: 218.625.2332
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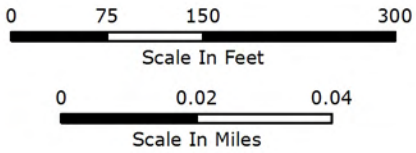
Figure 6
MP 1331
Sampling Location
September 19, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



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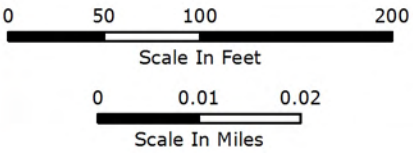
Figure 7
MP 1331.5
Sampling Location
September 18, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



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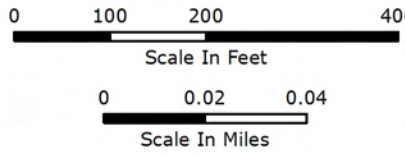
Figure 8
MP 1337
Sampling Location
September 23, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



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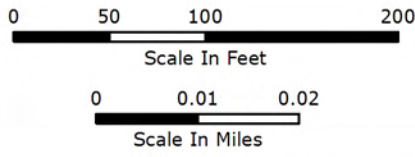
Figure 9
MP 1339.5
Sampling Location
September 24, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



Project Number: 5539-140
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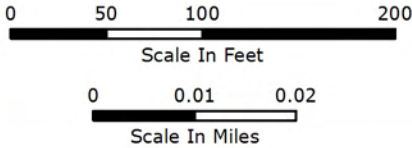
Figure 10
MP 1341
Sampling Location
September 25, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway



Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial



11 E. Superior St. Suite #260
Duluth, MN 55802
Phone: 218.625.2332
Fax: 218.625.2337



APPENDIX A

ANALYTICAL SUMMARIES

SAP ANALYTICAL SUMMARY # OU6RR0908
SUMMARY OF PREPARATION AND ANALYTICAL REQUIREMENTS FOR ASBESTOS

SAP Title: Rail Maintenance Public Receptor Activity-Based Sampling and Analysis Plan

SAP Date (Revision): September 23, 2008

EPA Technical Advisor: Kathryn Hernandez

(contact to advise on DQOs of SAP related to preparation/analytical requirements)

Sampling Program Overview: This document is the Rail Maintenance Public Receptor Activity-Based Sampling and Analysis Plan (SAP) for the collection and analysis of samples of soil and outdoor air in the immediate vicinity of rail maintenance activities that may actively disturb outdoor soil on portions of BNSF Railway Company (BNSF) Right-of-Way (ROW), which is located within Operable Unit (OU) six of the Libby, Montana, Superfund Site. This SAP addresses public receptors (e.g., trespassers, near-by residents) that may be exposed to asbestos in air as a result of BNSF rail maintenance activities. Potential exposures will be evaluated through the collection of personal air samples (trespassers), stationary air samples and soil samples (to provide valuable information for scoping the RI/FS Work Plan for OU6). A total of 53 air samples (21 personal, 25 stationary, 7 blanks) and 61 soil samples will be collected.

Index ID Prefix: BA = Air, RR = Soil

Medium-Specific TEM/PCM Preparation and Analytical Requirements for Field Samples:

Medium Specific TEM/EDX Preparation and Analytical Requirements for Field Samples									
Medium Code	Medium, Sample Type	Preparation Details				Analysis Details			Applicable Laboratory Modifications (c)
		Investigative? (a)	Indirect Prep? (a,b)		Filter Archive? (b)	Method(s)	Recording Rules	Analytical Sensitivity/ Stopping Rules	
			With Ashing (b)	Without Ashing (b)					
A	Outdoor ABS Onlooker Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: $\geq 0.5\mu\text{m}$ AR: $\geq 3:1$	Count until 1 is achieved: i) Target S = 0.0001 cc-1(d), ii) 50 LA found, or iii) 0.5 mm ² of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
B	Outdoor ABS Pedestrian Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: $>0.5\mu\text{m}$	Count until 1 is achieved: i) Target S = 0.0001 cc-	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030,

Medium Code	Medium, Sample Type	Preparation Details				Analysis Details			Applicable Laboratory Modifications (c)
		Investigative? (a)	Indirect Prep? (a,b)		Filter Archive? (b)	Method(s)	Recording Rules	Analytical Sensitivity/ Stopping Rules	
			With Ashing (b)	Without Ashing (b)					
							AR: $\geq 3:1$	1(d), ii) 50 LA found, or iii) 0.5 mm ² of filter is evaluated	LB-000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
C	Outdoor Stationary Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: $\geq 0.5\mu\text{m}$ AR: $\geq 3:1$	Count until 1 is achieved: i) Target S = 0.0001 cc-1(d), ii) 50 LA found, or iii) 0.5 mm ² of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085

(a) See LB-000053 for additional details

(b) See most current version of EPA-LIBBY-08 for preparation details

(c) Use most recent versions of listed modifications

(d) Target sensitivity is set at 0.0001 cc-1; however, according to the Field Change Order (FCO) #17-1 (attached), sensitivity was adjusted to 0.0024 cc-1.

TEM/PCM Preparation and Analytical Requirements for Quality Control Samples:

Medium Code	Medium, Sample Type	Preparation Details			Analysis Details			Applicable Laboratory Modifications (c)
		Indirect Prep?		Filter Archive? (b)	Method(s)	Recording Rules	Stopping Rules	
		With Ashing (b)	Without Ashing (b)					
D	Field Blank	No	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: $\geq 0.5\mu\text{m}$ AR: $\geq 3:1$	Count until 0.1 mm ² of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
E	Lot Blank	No	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: $>0.5\mu\text{m}$	Count until 0.1 mm ² of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030,

Medium Code	Medium, Sample Type	Preparation Details			Analysis Details			Applicable Laboratory Modifications (c)
		Indirect Prep?		Filter Archive? (b)	Method(s)	Recording Rules	Stopping Rules	
		With Ashing (b)	Without Ashing (b)					
						AR: ≥3:1		LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085

(d) Target sensitivity is set at 0.0001 cc-1; however, according to the Field Change Order (FCO) #17-1 (attached) sensitivity was adjusted to 0.0024 cc-1.

PLM Preparation and Analytical Requirements:

Medium Code	Medium, Sample Type	Preparation Method	Analysis Method	Applicable Laboratory Modifications
F	Grab Soil Samples	PLM-VE: CDM-Libby-06, Rev 1	PLM-VE: SRC LIBBY - 03, Rev. 1	LB-000024, LB-0000024a

Laboratory Quality Control Frequencies:

TEM: Lab Blank – 4%
 Recount Same – 1%
 Recount Different – 2.5%
 Verified Analysis – 1%
 Repreparation – 1%
 Interlab – 0.5%

PLM: Lab Duplicate – 10%
 Interlab – 10%

Requirements Revision:

Revision #:	Effective Date:	Revision Description

Analytical Laboratory Review Sign-off:

☐ Batta [sign & date: _____]
☐ EMSL-Libby [sign & date: _____]
☐ EMSL – Westmont [sign & date: _____]
☐ EMSL – Beltsville [sign & date: _____]

☐ ESAT [sign & date: _____]
☐ Hygeia [sign & date: _____]
☐ MAS [sign & date: _____]
☐ RESI [sign & date: _____]

[Checking the box and initialing above indicates that the laboratory has reviewed and acknowledged the preparation and analytical requirements associated with the specified SAP.]



APPENDIX B

FIELD SAMPLING DATA SHEETS - AIR

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Lentz
 Person Sampled/Co. Name: Amenda Thorton / EMR SSN: 4491 Task: Trespassers - Pedestrian

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00003	<u>9/17/08</u> <u>ML</u>	
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP 1312</u>		
Category (circle)	<u>(FS)</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4099</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/17/08</u>		
Start Time	<u>07:49</u> <u>13:48</u> <u>9/17/08</u>		
Start Flow (L/min)	<u>2.8</u> <u>2.4</u> <u>ML</u>		
Stop Date	<u>9/17/08</u>		
Stop Time	<u>1348</u>		
Stop Flow (L/min)	<u>2.4</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number			
Archive Blank (circle): Yes <u>No</u>	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Volpe	Volpe	Volpe	Volpe
Entered (I-FO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
 (Provide Initials) ML

Completed by ML

QC by

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 1 Page No. 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: BNSF ROW 9/17/08 NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Dave Welch
 Person Sampled/Co. Name: Dave Welch 1 EMR SSN: 9586 Task: Trespassers - Pedestrians

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00004	<u>9/17/08</u> <u>ML</u>	
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP 1312</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>VFB-65</u>		
Start Date	<u>9/17/08</u>		
Start Time	<u>749</u> <u>1343</u>		
Start Flow (L/min)	<u>2.8</u> <u>2.8</u>		
Stop Date	<u>9/17/08</u>		
Stop Time	<u>1343</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe:			
Entered (LFO) Entered Validated	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by

QC by

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 1 Page No. 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Matt Lenz
 Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: On-looker Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00005		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP 1312</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- 45 <u>PCM- 0.8</u>	TEM- 45 PCM- 0.8	TEM- 45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4097</u>		
Flow Meter ID No.	<u>VFB-65</u>		
Start Date	<u>9/17/08</u>		
Start Time	<u>0753</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/17/08</u>		
Stop Time	<u>1400</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe			
Entered (LFO) Entered Validated	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
 (Provide Initials) ML

Completed by ML

QC by

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: John Starr, Matt Lenz

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00006	BA- 00007	BA- 00008
Location ID	SP- 138440	SP- 138441	SP- 138442
Sample Group	<u>Property</u>		
Location Description	<u>MP1312</u>	<u>MP1312</u>	<u>MP1312</u>
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank) DB (prep-dry blank)	<u>FS</u> FB (field blank) LB (lot blank) DB (prep-dry blank)	<u>FS</u> FB (field blank) LB (lot blank) DB (prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>NA</u>	Filename: <u>NA</u>	Filename: <u>NA</u>
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Flow Meter ID No.	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Start Date	<u>9/17/08</u>	<u>9/17/08</u>	<u>9/17/08</u>
Start Time	<u>07:40</u>	<u>07:12</u>	<u>07:34</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/17/08</u>	<u>9/17/08</u>	<u>9/17/08</u>
Stop Time	<u>1305</u>	<u>1304</u>	<u>1255</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>
Field Comments			
Cassette Lot Number:			
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)

Completed by: ML QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Lenz

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00009		
Location ID	SP- 138443		
Sample Group	Property		
Location Description	MP1312		
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>NA</u>	Filename: <u>NA</u>	Filename: <u>NA</u>
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>Q0802365</u>		
Flow Meter ID No.	<u>PFKS-1</u>		
Start Date	<u>9/17/08</u>		
Start Time	<u>0737</u> <u>1253</u> <u>1253</u>		
Start Flow (L/min)	<u>7.6</u> <u>7.6</u> <u>7.6</u>		
Stop Date	<u>9/17/08</u>		
Stop Time	<u>1253</u> <u>1253</u>		
Stop Flow (L/min)	<u>7.6</u> <u>7.6</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear NA	Pre Post Clear 2 nd Clear 3 rd Clear NA
Field Comments			
Cassette Lot Number:			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)

Completed by: ML QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway (Other) ROW
 Sampling Team: CDM Other EMR Names: _____

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00010		
Location ID	<u>Blank</u>		
Sample Group	<u>Property</u> ^{ML 11/10/08} <u>Blank</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>Blank</u>		
Category (circle)	FS <u>FB (field blank)</u> LB (lot blank) DB (prep-dry blank)	FS <u>FB (field blank)</u> LB (lot blank) DB (prep-dry blank)	FS <u>FB (field blank)</u> LB (lot blank) DB (prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) <u>Not Collected-not required for sample</u>	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Flow Meter Type (circle)	Rotometer DryCal <u>NA</u>	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear NA	Pre Post Clear 2 nd Clear 3 rd Clear NA	Pre Post Clear 2 nd Clear 3 rd Clear NA
Field Comments			
Cassette Lot Number:			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08
 Address: BNSF-Rowl Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Rowl)
 Sampling Team: CDM Other EMR Names: Matt Lenz
 Person Sampled/Co. Name: Dave Wickh / EMR SSN: 7586 Task: Trespassing

Data Item	<u>ML</u> 9/18/08 Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00013		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1331.5</u>		
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/18/08</u>		
Start Time	<u>1206</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/18/08</u>		
Stop Time	<u>1555</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>719870164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by ML

QC by SJC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08
 Address: BNSF Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: Matt Kent
 Person Sampled/Co. Name: Amanda Thornton / EMR SSN: 4491 Task: Transporter

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML</u> <u>9/18/08</u> BA- 00014		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1331.5</u>		
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4095</u>		
Flow Meter ID No.	<u>NFB-65</u>		
Start Date	<u>9/18/08</u>		
Start Time <u>9:00 AM</u>	<u>1000</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/18/08</u>		
Stop Time	<u>1555</u>		
Stop Flow (L/min)	<u>2.6</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>1198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by ML

QC by SJC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08
 Address: BNSF-Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: Matt Lent
 Person Sampled/Co. Name: Matt Lent EMR SSN: 2506 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00015		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP 1331.5		
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4099		
Flow Meter ID No.	UFB-65		
Start Date	9/18/08		
Start Time	10:15		
Start Flow (L/min)	2.8		
Stop Date	9/18/08		
Stop Time	1556		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by ML

QC by SC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: _____ Page No: _____ Sampling Date: 9/18/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Scott Carney

Data Item	Cassette 1 <i>ML 9/18/08</i>	Cassette 2 <i>ML 9/18/08</i>	Cassette 3 <i>ML 9/18/08</i>
Index ID	BA- 00016	BA- 00017	BA- 00018
Location ID	SP- 138444	SP- 138445	SP- 138446
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP 1331.5</u>	<u>MP 1331.5</u>	<u>MP 1331.5</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- 45</u> <u>PCM- 0.8</u>	<u>TEM- 45</u> <u>PCM- 0.8</u>	<u>TEM- 45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal <u>NA</u>	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>83- 6401</u> <i>ML 9/18/08</i>	<u>83- 6401</u> <i>ML 9/18/08</i>	<u>83- 6401</u> <i>ML 9/18/08</i>
Flow Meter ID No.	<u>UFB- 65</u> PFKS-1	<u>UFB- 65</u> PFKS-1	<u>UFB- 65</u> PFKS-1
Start Date	<u>9/18/08</u>	<u>9/18/08</u>	<u>9/18/08</u>
Start Time	<u>0958</u>	<u>0958</u>	<u>10:11</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/18/08</u>	<u>9/18/08</u>	<u>9/18/08</u>
Stop Time	<u>1550</u>	<u>1550</u>	<u>1545</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>
Field Comments			
Cassette Lot Number: <u>719870164</u>	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Scott Carney

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML 9/18/08</u> BA- 00019	BA- 00020	
Location ID	SP- 138447	Blank	
Sample Group	Property	Blank	
Location Description	MP1331.5	Blank	
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> <u>FB-(field blank)</u> LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> <u>FB-(field blank)</u> LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor Outdoor <u>NA</u>	Indoor Outdoor NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	25mm 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) <u>Not Collected- not required for sample</u>	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	802365		
Flow Meter ID No.	PFKS-1		
Start Date	9/18/08		
Start Time	1012		
Start Flow (L/min)	7.6		
Stop Date	9/18/08		
Stop Time	1544		
Stop Flow (L/min)	7.6		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear NA
Field Comments			
Cassette Lot Number: <u>719870164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: MLQC by: SJC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08
 Address: BNSF - ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Matt Lene
 Person Sampled/Co. Name: Dave Welch / EMR SSN: 9886 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>2</u> <u>9/19/08</u> BA- 00023		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1330.5</u> <u>ML</u> <u>1331</u> <u>9/19/08</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4091</u>		
Flow Meter ID No.	<u>VFB-65</u>		
Start Date	<u>9/19/08</u>		
Start Time	<u>0648</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/19/08</u>		
Stop Time	<u>1231</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>119270164</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe: Entered Validated	Entered Validated	Entered Validated	Entered Validated

 For Field Team Completion
 (Provide Initials)
Completed by MLQC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 11 Sampling Date: 9/19/08
 Address: BNSF Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: Math Lenz
 Person Sampled/Co. Name: Amanda Tilton EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML</u> <u>9/19/08</u> BA- 00024		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP</u> <u>1330.5</u> <u>ML</u> <u>9/19/08</u> <u>1331</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4095</u>		
Flow Meter ID No.	<u>VFB-65</u>		
Start Date	<u>9/19/08</u>		
Start Time	<u>0648</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/19/08</u>		
Stop Time	<u>1241</u>		
Stop Flow (L/min)	<u>2.6</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
ME1 Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion
(Provide Initials)

Completed by ML

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 11 Sampling Date: 9/19/08
 Address: BNSF-ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Math Lenz
 Person Sampled/Co. Name: Math Lenz / EMR SSN: 2806 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>11/19/08</u> BA- 00025		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-</u> <u>1330-51331</u> <u>ML</u> <u>9/19/08</u>		
Category (circle)	<u>(FS)</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>(Outdoor)</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>(25mm)</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>(PCM-0.8)</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>(Rotometer)</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4099</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/19/08</u>		
Start Time	<u>0634</u> <u>0648</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/19/08</u>		
Stop Time	<u>1241</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>(No)</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>(Yes)</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>(NA)</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>1198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe Entered Validated	Volpe Entered Validated	Volpe Entered Validated

For Field Team Completion
(Provide Initials)

Completed by ML

QC by

DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW) (ROW)
 Sampling Team: CDM Other EMR Names: Sohn Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>9-19-08</u> BA- 00026	<u>9-19-08</u> BA- 00027	<u>9-19-08</u> BA- 00028
Location ID	SP- 138448	<u>Blank</u>	SP- 138449
Sample Group	<u>Property</u>	<u>Blank</u>	<u>Property</u>
Location Description	<u>MP-1330.5 133</u> <u>ML</u> <u>9/19/08</u>	<u>Blank</u>	<u>MP-1330.5</u> <u>ML</u> <u>9/19/08</u>
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank) DB (prep-dry blank)	<u>FS</u> <u>FB (field blank)</u> LB (lot blank) DB (prep-dry blank)	<u>FS</u> FB (field blank) LB (lot blank) DB (prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) <u>Not Collected- not required for sample</u>	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>NA</u>	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>6401</u>		<u>8369</u>
Flow Meter ID No.	<u>PFKS-1</u>		<u>PFKS-1</u>
Start Date	<u>9/19/08</u>		<u>9/19/08</u>
Start Time	<u>0729</u>		<u>0729</u>
Start Flow (L/min)	<u>7.6</u>		<u>7.6</u>
Stop Date	<u>9/19/08</u>		<u>9/19/08</u>
Stop Time	<u>1147</u>		<u>1148</u>
Stop Flow (L/min)	<u>7.6</u>		<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No Yes NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear NA	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>
Field Comments			
Cassette Lot Number: <u>719817064</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)

Completed by: MLQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 13 Sampling Date: 9/22/08
 Address: BNSF-ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway (Other) ROW
 Sampling Team: CDM (Other) ENR Names: Met Lenz
 Person Sampled/Co. Name: Met Lenz / ENR SSN: 2806 Task: Outlook/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML 9/22/08</u> BA- 00031		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1329</u> <u>1328 1329.8</u> <u>ML 9/22/08</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM .45 <u>PCM-0.8</u>	TEM .45 <u>PCM-0.8</u>	TEM .45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4095</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/22/08</u>		
Start Time	<u>0941</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/22/08</u>		
Stop Time	<u>1435</u>		
Stop Flow (L/min)	<u>2.5</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by MLQC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 13 Sampling Date: 7/22/08
 Address: BNSF - Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Amenda Thornton, Matt Kiz
 Person Sampled/Co. Name: Amenda Thornton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00032		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1324 1329.8 1328 7/22/08		
Category (circle)	<input checked="" type="radio"/> FS <input type="radio"/> FB (field blank) <input type="radio"/> LB (lot blank)	FS <input type="radio"/> FB (field blank) <input type="radio"/> LB (lot blank)	FS <input type="radio"/> FB (field blank) <input type="radio"/> LB (lot blank)
Matrix Type (circle)	Indoor <input checked="" type="radio"/> Outdoor	Indoor <input type="radio"/> Outdoor	Indoor <input type="radio"/> Outdoor
Filter Diameter (circle)	<input checked="" type="radio"/> 25mm <input type="radio"/> 37mm	25mm <input type="radio"/> 37mm	25mm <input type="radio"/> 37mm
Pore Size (circle)	TEM-45 <input checked="" type="radio"/> PCM-0.8	TEM-45 <input type="radio"/> PCM-0.8	TEM-45 <input type="radio"/> PCM-0.8
Flow Meter Type (circle)	<input checked="" type="radio"/> Rotometer <input type="radio"/> DryCal <input type="radio"/> NA	Rotometer <input type="radio"/> DryCal <input type="radio"/> NA	Rotometer <input type="radio"/> DryCal <input type="radio"/> NA
Pump ID Number	4091		
Flow Meter ID No.	UFB-65		
Start Date	7/22/08		
Start Time	0946		
Start Flow (L/min)	2.8		
Stop Date	7/22/08		
Stop Time	1435		
Stop Flow (L/min)	2.6		
Pump fault? (circle)	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> NA	No <input type="radio"/> Yes <input type="radio"/> NA	No <input type="radio"/> Yes <input type="radio"/> NA
MET Station onsite?	No <input checked="" type="radio"/> Yes <input type="radio"/> NA	No <input type="radio"/> Yes <input type="radio"/> NA	No <input type="radio"/> Yes <input type="radio"/> NA
Sample Type	TWA <input type="radio"/> EXC <input checked="" type="radio"/> NA	TWA <input type="radio"/> EXC <input type="radio"/> NA	TWA <input type="radio"/> EXC <input type="radio"/> NA
Field Comments			
Cassette Lot Number	719870164		
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
	Volpe:	Volpe:	Volpe:
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by ML

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 13 Sampling Date: 7/22/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other ENR Names: MLL WZ
 Person Sampled/Co. Name: Dave Welch / ENR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00033		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1329 1329.8</u> <u>1328 ML</u> <u>7/22/08</u>		
Category (circle)	<u>FS</u> FS (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM 45 <u>PCM 0.8</u>	TEM 45 PCM 0.8	TEM 45 PCM 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>7/22/08</u>		
Start Time	<u>1030</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>7/22/08</u>		
Stop Time	<u>1425</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe:			
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by MLQC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 13/14 Sampling Date: 9/22/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: MATT LEHZE, JOHN STARR

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>BA- 00034</u>	<u>BA- 00035</u>	<u>BA- 00036</u>
Location ID	<u>SP- 138450</u>	<u>SP- 138451</u>	<u>Blank</u>
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP 1329 1329.8</u> <u>1328 ML 9/22/08</u>	<u>MP 1329 1329.8</u> <u>1328 ML 9/22/08</u>	<u>Blank</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- 45</u> <u>PCM- 0.8</u>	<u>TEM- 45</u> <u>PCM- 0.8</u>	<u>TEM- 45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>NA</u>
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>6401</u>	<u>8369</u>	
Flow Meter ID No.	<u>PFK5-1</u>	<u>PFK5-1</u>	
Start Date	<u>9/22/08</u>	<u>9/22/08</u>	
Start Time	<u>1051</u>	<u>1051</u>	
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	
Stop Date	<u>9/22/08</u>	<u>9/22/08</u>	
Stop Time	<u>1437</u>	<u>1437</u>	
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	No Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear <u>2nd Clear 3rd Clear NA</u>	Pre Post Clear <u>2nd Clear 3rd Clear NA</u>	Pre Post Clear <u>2nd Clear 3rd Clear NA</u>
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)

Completed by: MLQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 16 Sampling Date: 9/23/08
 Address: BNSF-ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (Row)

Sampling Team: CDM Other EMR Names: Mathew

Person Sampled/Co. Name: Mathew / EMR SSN: 2806 Task: onlooker/responder

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00039		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1337</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	<u>FS</u> FB (field blank) LB (lot blank)	<u>FS</u> FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor <u>Outdoor</u>	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm <u>37mm</u>	25mm 37mm
Pore Size (circle)	TEM- 45 <u>PCM-0.8</u>	TEM- 45 PCM-0.8	TEM- 45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>VFB-6.5</u>		
Start Date	<u>9/23/08</u>		
Start Time	<u>0653</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/23/08</u>		
Stop Time	<u>1150</u>		
Stop Flow (L/min)	<u>2.7</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe:			
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by MC

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 16 Sampling Date: 9/23/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Math Kene
 Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index-ID	BA-00040		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1337		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	<u>FS</u> FB (field blank) LB (lot blank)	<u>FS</u> FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor <u>Outdoor</u>	Indoor <u>Outdoor</u>
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm <u>37mm</u>	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4091		
Flow Meter ID No.	VFB-68		
Start Date	9/23/08		
Start Time	0710		
Start Flow (L/min)	2.7		
Stop Date	9/23/08		
Stop Time	1159		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 1198170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
	Volpe:	Volpe:	Volpe:
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by ML

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 16 Sampling Date: 9/23/08Address: BNSF-ROW Owner/Tenant: BNSFBusiness Name: NALand Use: Residential School Commercial Mining Roadway Other RowSampling Team: CDM Other EMR Names: Math lentzPerson Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>BA-00041</u>		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1337</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor <u>Outdoor</u>	Indoor <u>Outdoor</u>
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm <u>37mm</u>	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4095</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/23/08</u>		
Start Time	<u>0720</u>		
Start Flow (L/min)	<u>2.7</u>		
Stop Date	<u>9/23/08</u>		
Stop Time	<u>1151</u>		
Stop Flow (L/min)	<u>2.6</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>719817064</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe:			
Entered (LFO) _____	Entered _____ Validated _____	Entered _____ Validated _____	Entered _____ Validated _____

For Field Team Completion
(Provide Initials)Completed by MLQC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 17 Sampling Date: 9/23/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: John Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML 9/23/08</u> BA- 00042	<u>ML 9/23/08</u> BA- 00043	<u>ML 9/23/08</u> BA- 00044
Location ID	SP- 138452	SP- 138453	SP- 138454
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP-1337</u>	<u>MP-1337</u>	<u>MP-1337</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>6401</u>	<u>8369</u>	<u>8361</u>
Flow Meter ID No.	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Start Date	<u>9/23/08</u>	<u>9/23/08</u>	<u>9/23/08</u>
Start Time	<u>0727</u>	<u>0728</u>	<u>0740</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/23/08</u>	<u>9/23/08</u>	<u>9/23/08</u>
Stop Time			<u>1152</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> <u>Yes</u> NA	<u>No</u> <u>Yes</u> NA	<u>No</u> <u>Yes</u> NA
MET Station onsite? (circle)	<u>No</u> <u>Yes</u> NA	<u>No</u> <u>Yes</u> NA	<u>No</u> <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>
Field Comments	<u>Generator stopped working</u>	<u>Generator stopped working</u>	
Cassette Lot Number: <u>719817064</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)

Completed by: ML

QC by:

RW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 17 Sampling Date: 9/23/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: John Storr, Dae Welch, Matt Leary

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML 9/23/08</u> BA- 00045	<u>ML 9/23/08</u> BA- 00046	
Location ID	SP- 138455	<u>ML 9/23/08</u> Blank AD-00528	
Sample Group	<u>Property</u>	<u>Blank</u>	
Location Description	<u>MP-1337</u>	<u>Blank</u>	
Category (circle)	<u>FS</u> <input type="radio"/> <u>FB</u> (field blank) <input type="radio"/> LB (lot blank) <input type="radio"/> DB (prep-dry blank) <input type="radio"/>	<u>FS</u> <input type="radio"/> <u>FB</u> (field blank) <input type="radio"/> LB (lot blank) <input type="radio"/> DB (prep-dry blank) <input type="radio"/>	<u>FS</u> <input type="radio"/> <u>FB</u> (field blank) <input type="radio"/> LB (lot blank) <input type="radio"/> DB (prep-dry blank) <input type="radio"/>
Matrix Type (circle)	Indoor <input type="radio"/> <u>Outdoor</u> <input type="radio"/> NA <input type="radio"/>	Indoor <input type="radio"/> <u>Outdoor</u> <input type="radio"/> NA <input type="radio"/>	Indoor <input type="radio"/> <u>Outdoor</u> <input type="radio"/> NA <input type="radio"/>
Filter Diameter (circle)	<u>25mm</u> <input type="radio"/> 37mm <input type="radio"/>	<u>25mm</u> <input type="radio"/> 37mm <input type="radio"/>	<u>25mm</u> <input type="radio"/> 37mm <input type="radio"/>
Pore Size (circle)	<u>TEM- .45</u> <input type="radio"/> <u>PCM- 0.8</u> <input type="radio"/>	<u>TEM- .45</u> <input type="radio"/> <u>PCM- 0.8</u> <input type="radio"/>	<u>TEM- .45</u> <input type="radio"/> <u>PCM- 0.8</u> <input type="radio"/>
GPS Status (circle)	<u>Collected</u> <input type="radio"/> Previously Collected <input type="radio"/> Not Collected-no signal (3 attempts) <input type="radio"/> Not Collected-not required for sample <input type="radio"/>	<u>Collected</u> <input type="radio"/> Previously Collected <input type="radio"/> Not Collected-no signal (3 attempts) <input type="radio"/> Not Collected- not required for sample <input type="radio"/>	<u>Collected</u> <input type="radio"/> Previously Collected <input type="radio"/> Not Collected-no signal (3 attempts) <input type="radio"/> Not Collected- not required for sample <input type="radio"/>
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA <input type="radio"/>	Filename: <u>BNSF ROW</u> NA <input type="radio"/>	Filename: _____ NA <input type="radio"/>
Flow Meter Type (circle)	<u>Rotometer</u> <input type="radio"/> DryCal <input type="radio"/> NA <input type="radio"/>	<u>Rotometer</u> <input type="radio"/> DryCal <input type="radio"/> NA <input type="radio"/>	<u>Rotometer</u> <input type="radio"/> DryCal <input type="radio"/> NA <input type="radio"/>
Pump ID Number	<u>00802365</u>	<u>ML 9/23/08</u>	
Flow Meter ID No.	<u>PFKS-1</u>		
Start Date	<u>9/23/08</u>		
Start Time	<u>7:40</u>		
Start Flow (L/min)	<u>7.6</u>		
Stop Date	<u>9/23/08</u>		
Stop Time	<u>1152</u>		
Stop Flow (L/min)	<u>7.6</u>		
Pump fault? (circle)	<u>No</u> <input type="radio"/> Yes <input type="radio"/> NA <input type="radio"/>	<u>No</u> <input type="radio"/> Yes <input type="radio"/> NA <input type="radio"/>	<u>No</u> <input type="radio"/> Yes <input type="radio"/> NA <input type="radio"/>
MET Station onsite? (circle)	<u>No</u> <input type="radio"/> <u>Yes</u> <input type="radio"/> NA <input type="radio"/>	<u>No</u> <input type="radio"/> Yes <input type="radio"/> NA <input type="radio"/>	<u>No</u> <input type="radio"/> Yes <input type="radio"/> NA <input type="radio"/>
Sample Type (circle)	Pre <input type="radio"/> Post <input type="radio"/> Clear <input type="radio"/> 2 nd Clear <input type="radio"/> 3 rd Clear <input type="radio"/> <u>NA</u> <input type="radio"/>	Pre <input type="radio"/> Post <input type="radio"/> Clear <input type="radio"/> 2 nd Clear <input type="radio"/> 3 rd Clear <input type="radio"/> NA <input type="radio"/>	Pre <input type="radio"/> Post <input type="radio"/> Clear <input type="radio"/> 2 nd Clear <input type="radio"/> 3 rd Clear <input type="radio"/> NA <input type="radio"/>
Field Comments			
Cassette Lot Number: <u>719817016</u>			
	Archive Blank (circle): Yes <input type="radio"/> No <input type="radio"/>	Archive Blank (circle): Yes <input type="radio"/> No <input type="radio"/>	Archive Blank (circle): Yes <input type="radio"/> No <input type="radio"/>
Entered (LFO): _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: MLQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08
 Address: BNSF-ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: Math Lenz
 Person Sampled/Co. Name: Math Lenz / EMR SSN: 2806 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML 9/24/08</u> BA- 00049		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1339.8</u>		
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/23/08</u> <u>9/24/08</u>		
Start Time	<u>0907</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/24/08</u>		
Stop Time	<u>1359</u>		
Stop Flow (L/min)	<u>2.7</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)Completed by MLQC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08
 Address: BNSF - Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: Matt Lenz
 Person Sampled/Co. Name: Amanda Thornton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>ML</u> <u>9/24/08</u> BA- 00050		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1339.5</u>		
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4099</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/24/08</u>		
Start Time	<u>0907</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/24/08</u>		
Stop Time	<u>1400</u>		
Stop Flow (L/min)	<u>2.7</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by MC

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08
 Address: BNSF-Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway (Other) Row
 Sampling Team: CDM (Other) EMR Names: Math Lenz
 Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 444-9586 Task: Trespasser
Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00051		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1339.5		
Category (circle)	<u>(FS)</u> FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 <u>PCM- 0.8</u>	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal <u>NA</u>	Rotometer DryCal NA
Pump ID Number	4098		
Flow Meter ID No.	UFB-65		
Start Date	9/24/08		
Start Time	0907		
Start Flow (L/min)	2.7		
Stop Date	9/24/08		
Stop Time	1400		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by ML

QC by

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 20 Sampling Date: 9/24/08
 Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>BA- 00052</u>	<u>BA- 00053</u>	<u>BA- 00054</u>
Location ID	<u>SP- 138456</u>	<u>SP- 138457</u>	<u>SP- 138458</u>
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP-1339.5</u>	<u>MP-1339.5</u>	<u>MP-1339.5</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-Row</u> NA	Filename: <u>BNSF-Row</u> NA	Filename: <u>BNSF-Row</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>00802365</u>	<u>6401</u>	<u>8361</u>
Flow Meter ID No.	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Start Date	<u>9/24/08</u>	<u>9/24/08</u>	<u>9/24/08</u>
Start Time	<u>0909</u>	<u>0910</u>	<u>0911</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/24/08</u>	<u>9/24/08</u>	<u>9/24/08</u>
Stop Time	<u>1243</u>	<u>1243</u>	<u>1246</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: MLQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 20 Sampling Date: 9/24/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: John Starr

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>BA- 00055</u>	<u>BA- 00056</u>	<u>BA- 00057</u>
Location ID	<u>SP- 138459</u>	<u>AD-005568</u>	<u>AD-005568</u>
Sample Group	<u>Property</u>	<u>Blank</u>	<u>Blank</u>
Location Description	<u>MP-1339.5</u>	<u>MP-1339.5</u>	<u>MP-1339.5</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> <u>FB-(field blank)</u> LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> <u>FB-(field blank)</u> LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> <u>NA</u>
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>	<u>TEM- .45</u> <u>PCM- 0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF- ROW</u> NA	Filename: <u>NA</u>	Filename: <u>NA</u>
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>8369</u>		
Flow Meter ID No.	<u>DFKS-1</u>		
Start Date	<u>9/24/08</u>		
Start Time	<u>0911</u>	<u>ML</u>	<u>ML</u>
Start Flow (L/min)	<u>7.6</u>	<u>9/24/08</u>	<u>7/24/08</u>
Stop Date	<u>9/24/08</u>		
Stop Time	<u>1246</u>		
Stop Flow (L/min)	<u>7.6</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> <u>NA</u>	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> NA	Pre Post Clear <u>2nd Clear</u> <u>3rd Clear</u> NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: MLQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 21 Sampling Date: 9/25/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: Matt Kent
 Person Sampled/Co. Name: Matt Kent 1 EMR SSN: 2806 Task: onlooker/trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00060		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1341</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- 45 <u>PCM- 0.8</u>	TEM- 45 PCM- 0.8	TEM- 45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4099</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/25/08</u>		
Start Time	<u>0653</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/25/08</u>		
Stop Time	<u>1030</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number	<u>7198170164</u>		
Archive Blank (circle): Yes No			
Volpe:			
Entered (LFO) Entered Validated			

For Field Team Completion
(Provide Initials)

Completed by

QC by

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: Sampling Date: 9/25/08
 Address: BUSE-ROW Owner/Tenant: BUSE
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other ROW
 Sampling Team: CDM Other EMR Names: Matt Lenz
 Person Sampled/Co. Name: Amanda Thompson / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00061		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-005568</u>		
Category (circle)	<u>FS</u> FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM-45 <u>PCM-0.8</u>	TEM-45 PCM-0.8	TEM-45 PCM-0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4098</u>		
Flow Meter ID No.	<u>VFB-65</u>		
Start Date	<u>9/25/08</u>		
Start Time	<u>0655</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/25/08</u>		
Stop Time	<u>1040</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MEI Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170164</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Volpe	Volpe	Volpe	Volpe
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by M2

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 22 Sampling Date: 9/25/08
 Address: BASF Owner/Tenant: BASF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other Row
 Sampling Team: CDM Other EMR Names: Math Kentz
 Person Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00062		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Property</u>		
Location Description	<u>MP-1341</u>		
Category (circle)	<u>FS</u> FS (field blank) LB (lot blank)	FS FS (field blank) LB (lot blank)	FS FS (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- 45 <u>PCM- 0.8</u>	TEM- 45 PCM- 0.8	TEM- 45 PCM- 0.8
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	<u>4100</u>		
Flow Meter ID No.	<u>UFB-65</u>		
Start Date	<u>9/25/08</u>		
Start Time	<u>0656</u>		
Start Flow (L/min)	<u>2.8</u>		
Stop Date	<u>9/25/08</u>		
Stop Time	<u>1031</u>		
Stop Flow (L/min)	<u>2.8</u>		
Pump fault? (circle)	<u>No</u> Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No <u>Yes</u> NA	No Yes NA	No Yes NA
Sample Type	TWA EXC <u>NA</u>	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7198170104</u>			
Archive Blank (circle): Yes No	Volpe	Volpe	Volpe
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion
(Provide Initials)

Completed by ML

QC by DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 21 Sampling Date: 9/25/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: John Starr, Matt Lenz, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	<u>BA- 00063</u>	<u>BA- 00064</u>	<u>BA- 00065</u>
Location ID	<u>SP-138460</u>	<u>SP-138460</u>	<u>SP-138461</u>
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP-1341</u>	<u>MP-1341</u>	<u>MP-1341</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>PO9063</u>	<u>6401</u>	<u>8369</u>
Flow Meter ID No.	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Start Date	<u>9/25/08</u>	<u>9/25/08</u>	<u>9/25/08</u>
Start Time	<u>0728</u>	<u>0728</u>	<u>0728</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/25/08</u>	<u>9/25/08</u>	<u>9/25/08</u>
Stop Time	<u>1002</u>	<u>1002</u>	<u>1003</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>
Field Comments	<u>Cap put on while pump still running slight tear in filter</u>	<u>Co located with BA-00063</u>	
Cassette Lot Number: <u>7198170164</u>	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

ML

QC by:

DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 2122 Sampling Date: 9/25/08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway (Other) ROW
 Sampling Team: CDM (Other) EMR Names: John Starr, Matt Herz, Dave Welch

Data Item	Cassette 1 <u>ML/108</u> <u>9/25/08</u>	Cassette 2 <u>ML/108</u> <u>9/25/08</u>	Cassette 3 <u>ML/108</u> <u>9/25/08</u>
Index ID	BA- 00066	BA- 00067	BA- 00068
Location ID	<u>SP-138462</u>	<u>SP-138463</u>	<u>SP-138463</u>
Sample Group	<u>Property</u>	<u>Property</u>	<u>Property</u>
Location Description	<u>MP-1341</u>	<u>MP-1341</u>	<u>MP-1341</u>
Category (circle)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	<u>FS</u> FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA	Indoor <u>Outdoor</u> NA
Filter Diameter (circle)	<u>25mm</u> 37mm	<u>25mm</u> 37mm	<u>25mm</u> 37mm
Pore Size (circle)	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>	<u>TEM-45</u> <u>PCM-0.8</u>
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA	Filename: <u>BNSF-ROW</u> NA
Flow Meter Type (circle)	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA	<u>Rotometer</u> DryCal NA
Pump ID Number	<u>8361</u>	<u>0802362</u>	<u>0802365</u>
Flow Meter ID No.	<u>PFKS-1</u>	<u>PFKS-1</u>	<u>PFKS-1</u>
Start Date	<u>9/25/08</u>	<u>9/25/08</u>	<u>9/25/08</u>
Start Time	<u>0725</u>	<u>0725</u>	<u>0725</u>
Start Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Stop Date	<u>9/25/08</u>	<u>9/25/08</u>	<u>9/25/08</u>
Stop Time	<u>0959</u>	<u>1000</u>	<u>1000</u>
Stop Flow (L/min)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>
Pump fault? (circle)	<u>No</u> Yes NA	<u>No</u> Yes NA	<u>No</u> Yes NA
MET Station onsite? (circle)	No <u>Yes</u> NA	No <u>Yes</u> NA	No <u>Yes</u> NA
Sample Type (circle)	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>	Pre Post Clear 2 nd Clear 3 rd Clear <u>NA</u>
Field Comments			<u>Co located with BA-00067</u>
Cassette Lot Number: <u>7198170164</u>			
Archive Blank (circle): Yes No	Yes No	Yes No	Yes No
Entered (LFO): _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 23 Sampling Date: 9/25/08
 Address: BNSF-Row Owner/Tenant: BNSF
 Business Name: NA
 Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other EMR Names: MLL
 Person Sampled/Co. Name: 1 SSN: _____ Task: _____

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00069		
Location ID	<u>AD-005568</u>		
Sample Group	<u>Blank</u>		
Location Description	<u>Blank</u>		
Category (circle)	FS <u>FB</u> (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)	FS FB (field blank) LB (lot blank)
Matrix Type (circle)	Indoor <u>Outdoor</u>	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	<u>25mm</u> 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- 45 <u>PCM- 0.8</u>	TEM- 45 PCM- 0.8	TEM- 45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal <u>NA</u>	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: <u>7148170164</u>			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion
(Provide Initials)

Completed by ML

QC by DW



APPENDIX C

FIELD SAMPLING DATA SHEETS – SOIL

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08
 Address: BNSF Row Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (Row)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON-EMM

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00001</u>	<u>RR- 00002</u>	<u>RR- 00003</u>
Location ID	<u>SP- 138460</u>	<u>SP- 138461</u>	<u>SP- 138462</u>
Sample Group	<u>MP 1312 Property</u>	<u>Property</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>1037 (MOUNTAIN TIME)</u>	<u>1048 (MT)</u>	<u>1057 (MT)</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>5"</u>	<u>4"</u>	<u>5"</u>
Field Comments Note if vermiculite is visible in sampled area	BD- _____ <u>None</u>	BD- _____ <u>LOW</u>	BD- _____ <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other ()
 Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON - EM

Data Item	Sample 1 <u>9-17-08</u>	Sample 2 <u>9-17-08</u>	Sample 3 <u>9-17-08</u>
Index ID	<u>RR- 00004</u>	<u>RR- 00005</u>	<u>RR- 00006</u>
Location ID	<u>SP- 138463</u>	<u>SP- 138464</u>	<u>SP- 138465</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>1105 (MT)</u>	<u>1113 (MT)</u>	<u>1122 (MT)</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>5"</u>	<u>5"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	BD- _____ <u>LOW</u>	BD- _____ <u>LOW</u>	BD- _____ <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: NALand Use: Residential School Commercial Mining Roadway Other (Row)Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON-LEM

Data Item	Sample 17 <u>9-17-08</u>	Sample 18 <u>9-17-08</u>	Sample 19 <u>9-17-08</u>
Index ID	<u>RR- 00007</u>	<u>RR- 00008</u>	<u>RR- 00009</u>
Location ID	<u>SP- 138466</u>	<u>SP- 138467</u>	<u>SP- 138468</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>1129 (MT)</u>	<u>1138 (MT)</u>	<u>1147 (MT)</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>4" (BALLAST)</u>
Field Comments Note if vermiculite is visible in sampled area	BD- _____ <u>NONE</u>	BD- _____ <u>NONE</u>	BD- _____ <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08
 Address: BHSF Row Owner/Tenant: BHSF
 Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (Row)
 Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON - EMR

Data Item	Sample 10 <u>9-17-08</u>	Sample 11 <u>9-17-08</u>	Sample 12 <u>9-17-08</u>
Index ID	<u>RR- 00010</u>	<u>RR- 00011</u>	<u>RR- 00012</u>
Location ID	<u>SP- 138469</u>	<u>SP- 138470</u>	<u>SP- 138471</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>1156 (MT)</u>	<u>1204 (MT)</u>	<u>1214 (MT)</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>4"</u>	
Field Comments Note if vermiculite is visible in sampled area	BD- _____ <u>LOW</u>	BD- _____ <u>LOW</u>	BD- _____ <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: Sampling Date: 9-17-08
 Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (Row)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON-EMR

Data Item	Sample 13 ⁹⁻¹⁷⁻⁰⁸	Sample 14 ⁹⁻¹⁷⁻⁰⁸	Sample 15 ⁹⁻¹⁷⁻⁰⁸
Index ID	<u>RR- 00013</u>	<u>RR- 00014</u>	<u>RR- 00015</u>
Location ID	<u>SP- 138472</u>	<u>SP- 138473</u>	<u>SP- 138474</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>	Back yard Front yard Side yard Driveway Other <u>MP 1312</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: _____ NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>1233</u>	<u>1254</u>	<u>1316</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>4"</u>	<u>4"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	BD- _____ <u>NONE</u>	BD- _____ <u>LOW</u>	BD- _____ <u>NONE</u>
Entered (LFO) _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by:

QC by:

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 18219 Sampling Date: 09-18-08
 Address: MP 1331.5 ACT 9-18-08 BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00016</u>	<u>RR- 00017</u>	<u>RR- 00018</u>
Location ID	<u>SP- 138475</u>	<u>SP- 138476</u>	<u>SP- 138477</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other MP 1331.5</u>	Back yard Front yard Side yard Driveway <u>Other MP 1331.5</u>	Back yard Front yard Side yard Driveway <u>Other 1331.5</u>
Category (circle)	<u>ES</u> FD of _____ EB LB	<u>ES</u> FD of _____ EB LB	<u>ES</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1107</u>	<u>1115</u>	<u>1118</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>4"</u>	<u>4"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>BD-AD-005568</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: DWQC by: AC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 19220 Sampling Date: 09-18-08
 Address: MP 1331.5 BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EML Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00019</u>	<u>RR- 00020</u>	<u>RR- 00021</u>
Location ID	<u>SP- 138478</u>	<u>SP- 138479</u>	<u>SP- 138480</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other MP1331.5</u>	Back yard Front yard Side yard Driveway <u>Other MP1331.5</u>	Back yard Front yard Side yard Driveway <u>Other MP1331.5</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1142</u>	<u>1152</u>	<u>1200</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>4"</u>	<u>4"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> <u>NONE</u>	<u>AD-005568</u> <u>LOW</u>	<u>AD-005568</u> <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: DJWQC by: AC

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 20 Sampling Date: 09-18-08
 Address: MP 1331.5 ACT 9-18-08 BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00022</u>	<u>RR- 00023</u>	<u>RR- 00024</u>
Location ID	<u>SP- 138481</u>	<u>SP- 138482</u>	<u>SP- 138483</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1331.5</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1331.5</u>	Back yard Front yard Side yard Driveway <u>Other</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> <u>Other</u> _____	<u>Surface Soil</u> <u>Other</u> _____	Surface Soil <u>Other</u> _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: _____ NA
Sample Time	<u>1213</u>	<u>1227</u>	
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>BD- AD-005568</u> <u>LOW</u>	<u>BD- AD-005568</u> <u>LOW</u>	BD- _____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: DJWQC by: AG

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 23824 Sampling Date: 09-19-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: DANE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00025</u>	<u>RR- 00026</u>	<u>RR- 00027</u>
Location ID	<u>SP- 138484</u>	<u>SP- 138485</u>	<u>SP- 138486</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1330.5</u> <u>1331 DW 9-19-08</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1330.5</u> <u>1331 DW 9-19-08</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1330.5</u> <u>1331 DW 9-19-08</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0754</u>	<u>0804</u>	<u>0813</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>BB-AD-005568</u> <u>9-19-08</u> <u>NONE</u>	<u>BB-AD-005568</u> <u>9-19-08</u> <u>NONE</u>	<u>BB-AD-005568</u> <u>9-19-08</u> <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: ACQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 24 Sampling Date: 09-19-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EML Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00028	RR- 00029	RR- 00030
Location ID	SP- 138487	SP- 138488	SP- 138489
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>1331 DW 1330.5 9-19-08</u>	Back yard Front yard Side yard Driveway Other <u>1331 DW 1330.5 9-19-08</u>	Back yard Front yard Side yard Driveway Other <u>1331 DW 1330.5 9-19-08</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0821</u>	<u>0832</u>	<u>0842</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>3"</u>	<u>3"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>BD-AD-005568</u> <u>9-19-08</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>9-19-08</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>9-19-08</u> <u>NONE</u>
Entered (LFO) _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AWQC by: AW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 28 Sampling Date: 09-22-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00031</u>	<u>RR- 00032</u>	<u>RR- 00033</u>
Location ID	<u>SP- 138490</u>	<u>SP- 138491</u>	<u>SP- 138492</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1329.8</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1115</u>	<u>1122</u>	<u>1138</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>4"</u>	<u>4"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> <u>NONE</u>	<u>AD-005568</u> <u>NONE</u>	<u>AD-005568</u> <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: forQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 28 & 29 Sampling Date: 09-22-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: N/ALand Use: Residential School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other EMP Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00034</u>	<u>RR- 00035</u>	<u>RR- 00036</u>
Location ID	<u>SP- 138493</u>	<u>SP- 138494</u>	<u>SP- 138495</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>Other MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>Other MP 1329.8</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1133</u>	<u>1143</u>	<u>1150</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>6"</u>	<u>6"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>AD-005568</u> <u>NONE</u>	<u>AD-005568</u> <u>NONE</u>	<u>AD-005568</u> <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: TCQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 29 & 30 Sampling Date: 09-22-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway (Other) ROW
 Sampling Team: CDM (Other) EMP Names: DAVE WELCH & AMANDA HORTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00037</u>	<u>RR- 00038</u>	<u>NOT USED</u>
Location ID	<u>SP- 138496</u>	<u>SP- 138497</u>	<u>NOT</u> <u>9-22-08</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>(Other) MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>(Other) MP 1329.8</u>	Back yard Front yard Side yard Driveway <u>(Other) MP 1329.8</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of <u>DLW</u> EB LB <u>9-22-08</u>
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1200</u>	<u>1208</u>	
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>3"</u>	<u>5"</u>	
Field Comments Note if vermiculite is visible in sampled area	<u>AD-AD-005568</u> <u>9-22-08</u> <u>NONE</u>	<u>AD-AD-005568</u> <u>9-22-08</u> <u>NONE</u>	<u>AD-AD-005568</u> <u>9-22-08</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by ADQC by: OW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 32 Sampling Date: 09-23-08
 Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/ALand Use: Residential 2308 School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00039</u>	<u>RR- 00040</u>	<u>RR- 00041</u>
Location ID	<u>SP- 138498</u>	<u>SP- 138499</u>	<u>SP- 138500</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>1337B</u> <u>Other MP 1337B</u>	Back yard Front yard Side yard Driveway <u>1337B</u> <u>Other MP 1337B</u>	Back yard Front yard Side yard Driveway <u>1337B</u> <u>Other MP 1337B</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0831</u>	<u>0838</u>	<u>0848</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>6"</u>
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>AD-AD-005568</u> <u>LOW</u>	<u>AD-AD-005568</u> <u>NONE</u>	<u>AD-AD-005568</u> <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AW

QC by:

DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 33 Sampling Date: 09-23-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: N/ALand Use: Residential School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other EML Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00042</u>	<u>RR- 00043</u>	<u>RR- 00044</u>
Location ID	<u>SP- 138501</u>	<u>SP- 138502</u>	<u>SP- 138503</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP1337B</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>1337B</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>1337B</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0856</u>	<u>0913</u> <u>0924</u>	<u>0913</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> <u>LOW</u>	<u>AD-005568</u> <u>LOW</u>	<u>AD-005568</u> <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AD

QC by:

DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 34 Sampling Date: 09-23-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: N/ALand Use: Residential School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00045</u>	<u>RR- 00046</u>	
Location ID	<u>SP- 138504</u>	<u>SP- 138505</u>	
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> <u>MP 1337B</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>1337B</u>	Back yard Front yard Side yard Driveway <u>Other</u> <u>1337B</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0936</u>	<u>0947</u>	
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> <u>LOW</u>	<u>AD-005568</u> <u>LOW medium</u>	<u>AD-005568</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: FWQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOILField Logbook No: 1 Page No: 37 & 38 Sampling Date: 9-24-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: N/ALand Use: Residential School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other GME Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00047	RR- 00048	RR- 00049
Location ID	SP- 138506	SP- 138507	SP- 138508
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> MP 1339.5	Back yard Front yard Side yard Driveway <u>Other</u> MP 1339.5	Back yard Front yard Side yard Driveway <u>Other</u> MP 1339.5
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0955</u>	<u>1002</u>	<u>1011</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> 9-24-08 NONE	<u>AD-005568</u> 9-24-08 NONE	<u>AD-005568</u> 9-24-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AWQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 38 & 39 Sampling Date: 9-24-08Address: BNSF ROW Owner/Tenant: BNSFBusiness Name: N/ALand Use: Residential School Commercial Mining Roadway Other (ROW)Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00050</u>	<u>RR- 00051</u>	<u>RR- 00052</u>
Location ID	<u>SP- 138509</u>	<u>SP- 138510</u>	<u>SP- 138511</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other MP1339.5</u>	Back yard Front yard Side yard Driveway <u>Other MP1339.5</u>	Back yard Front yard Side yard Driveway <u>Other MP1339.5</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1018</u>	<u>1027</u>	<u>1037</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>4"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005568</u> <u>9-24-08</u> <u>LOW</u>	<u>AD-005568</u> <u>9-24-08</u> <u>LOW</u>	<u>AD-005568</u> <u>9-24-08</u> <u>LOW</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AWQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 39840 Sampling Date: 9-24-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMP Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00053</u>	<u>RR- 00054</u>	
Location ID	<u>SP- 138512</u>	<u>SP- 138513</u>	
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1339.5</u>	Back yard Front yard Side yard Driveway Other <u>MP 1339.5</u>	Back yard Front yard Side yard Driveway Other <u>9-24-08</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	Surface Soil Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>1047</u>	<u>1102</u>	
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>5"</u>	
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>BD- AD-005568</u> <u>LOW</u>	<u>BD- AD-005568</u> <u>LOW</u>	BD- _____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AWQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 40 Sampling Date: 9-24-08
 Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00055		
Location ID	SP- 138514		
Sample Group	PROPERTY		
Location Description (circle)	Back yard Front yard Side yard Driveway <u>Other</u> MP 1339.5	Back yard Front yard Side yard Driveway Other	Back yard Front yard Side yard Driveway Other
Category (circle)	<u>FS</u> FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: _____ NA	Filename: _____ NA
Sample Time	1110		
Top Depth (inches below ground surface)	0		
Bottom Depth (inches below ground surface)	5"		
Field Comments Note if vermiculite is visible in sampled area	<u>AD-005518</u> <u>LOW</u>	BD- _____	BD- _____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: ADQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 43 Sampling Date: 9-25-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00056</u>	<u>RR- 00057</u>	<u>RR- 00058</u>
Location ID	<u>SP- 138515</u>	<u>SP- 138516</u>	<u>SP- 138517</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1341</u>	Back yard Front yard Side yard Driveway Other <u>MP 1341</u>	Back yard Front yard Side yard Driveway Other <u>MP 1341</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0752</u>	<u>0803</u>	<u>0812</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>BD-AD-005568</u> <u>9-25-08</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>9-25-08</u> <u>NONE</u>	<u>BD-AD-005568</u> <u>9-25-08</u> <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: AWQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 438+44 Sampling Date: 09-25-08
 Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/ALand Use: Residential School Commercial Mining Roadway (Other) ROWSampling Team: CDM (Other) ENR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	<u>RR- 00059</u>	<u>RR- 00060</u>	<u>RR- 00061</u>
Location ID	<u>SP- 138518</u>	<u>SP- 138519</u>	<u>SP- 138520</u>
Sample Group	<u>PROPERTY</u>	<u>PROPERTY</u>	<u>PROPERTY</u>
Location Description (circle)	Back yard Front yard Side yard Driveway <u>(Other) MP 1341</u>	Back yard Front yard Side yard Driveway <u>(Other) MP 1341</u>	Back yard Front yard Side yard Driveway <u>(Other) MP 1341</u>
Category (circle)	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB	<u>FS</u> FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____	<u>Surface Soil</u> Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____	<u>Grab</u> Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA	Filename: <u>BNSF ROW</u> NA
Sample Time	<u>0822</u>	<u>0833</u>	<u>0844</u>
Top Depth (inches below ground surface)	<u>0</u>	<u>0</u>	<u>0</u>
Bottom Depth (inches below ground surface)	<u>6"</u>	<u>6"</u>	<u>6"</u>
Field Comments Note if vermiculite is visible in sampled area	<u>AD-AD-005518</u> <u>AD-AD-005518</u> <u>NONE</u>	<u>AD-AD-005518</u> <u>AD-AD-005518</u> <u>NONE</u>	<u>AD-AD-005518</u> <u>AD-AD-005518</u> <u>NONE</u>
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: ADQC by: DW

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 44 Sampling Date: 9-25-08
 Address: BNSF ROW Owner/Tenant: BNSF
 Business Name: N/A
 Land Use: Residential School Commercial Mining Roadway Other (ROW)
 Sampling Team: CDM Other CMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00062		
Location ID	SP-138520 SP- 138521		
Sample Group	PROPERTY		
Location Description (circle)	Back yard Front yard Side yard Driveway Other <u>MP 1341</u>	Back yard Front yard Side yard Driveway Other	Back yard Front yard Side yard Driveway Other
Category (circle)	<u>FS</u> FD of <u>RR-00061</u> EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	<u>Surface Soil</u> Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	<u>Grab</u> Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	<u>Collected</u> Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: <u>BNSF ROW</u> NA	Filename: _____ NA	Filename: _____ NA
Sample Time	<u>0848</u>		
Top Depth (inches below ground surface)	<u>0</u>		
Bottom Depth (inches below ground surface)	<u>6"</u>		
Field Comments <i>Note if vermiculite is visible in sampled area</i>	<u>AD-003518</u> <u>9-25-08</u> <u>NONE</u>	BD- _____	BD- _____
Entered (LFO) _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____	Volpe: _____ Entered _____ Validated _____

For Field Team Completion (Provide Initials)

Completed by: ADQC by: DW



APPENDIX D

METEOROLOGICAL DATA

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APPENDIX E

FIELD NOTES

LIBBY, MT & TROY, MT
BNSF RAIL MAINTENANCE
ACTIVITY BASED SAMPLING (ABS)
FIELD BOOK #1

START DATE

09-17-08



"Rite in the Rain"

ALL-WEATHER
ENVIRONMENTAL

No. 550

6 Location MP 1312 Hi side LEFT Date 9-17-08
Project / Client BNSF

0545 EMR ARRIVED ON SITE FOR SAFETY MEETING.

0550 BNSF REP MET WITH SCOTT CARNEY & DAVID WELCH TO DISCUSS HOW TO HANG PUMPS ON WORKERS. ALSO MET WITH LAURA FROM ENSR AND NICOLE WITH CDM AT THIS TIME.

0608 BNSF SAFETY MEETING. TRACK TRAVELING FROM HARBOR TO RIPLEY, WAS EXPLAINED. GOOP SUITS & BOOTIES ARE PPE FOR BNSF EMPLOYEES.

EMPLOYEES WITH PERSONAL PUMPS:

ABS 0630 * VICTOR BACHMEIER 2767 BA-00002 004868

ABS 0630 * ERIC PAULACK 0145 BA-00001 004867

* VICTOR IS CRIB OPERATOR STOP TIME 1436

* ERIC IS LABORER 1432

BOTH PUMPS START TIME 0636

0621 SAFETY MEETING ENDS. BNSF EMPLOYEES OUTFIT INTO LEVEL D PPE WITH SUITS.

7 Location MP 1312 Hi side LEFT Date 9-17-08
Project / Client BNSF

OSHA SAMPLES

- A JOSH SYNNOTT 8473 GROUND CREW
~~OSHA SAMPLES~~ 09-17-08
B BRYCE VANDENBERG 6225 SCRUB CANE OP.
C RODNEY ZIMMERMANN 3662 TAMPER OP.
D KAGEN COX 9430 LABORER
E RYAN TUCKER 3932 LABORER
F MIKE COSSART 8354 SPIKER

PUMP NUMBERS

		PUMP START
C	RODNEY ZIMMERMAN #3	0637
D	KAGEN COX #4	0639
A	JOSH SYNNOTT #5	0641
E	RYAN TUCKER #6	0642
B	BRYCE VANDENBERG #7	0644
F	MIKE COSSART #8	0645

- BNSF REP BRETT PETERSON FOREMAN
0654 LEFT SAFETY MEETING AREA FOR RIPLEY.

0704 ARRIVED AT RIPLEY

TEAM MEMBERS: TASKS

SCOTT CARNEY (EMR) AIR / WEATHER MONITOR
DAVE WELCH (EMR) SOIL / AIR SAMPLING
JOHN STARR (EMR) AIR MONITORING

Location B MP 1312 Date 09-17-08
 Project / Client BNSF

TEAM MEMBERS CONT

AMANDA THORNTON (EMR) ^{WEATHER STATION / FIELD BOOK} SOIL SAMP.
 MATT LENZ (EMR) AIR SAMP. / GPS / VIDEO
 LAURA TROZZOLO
 NICOLE (CDM)
 BEIN

0710 EMR SAFETY MEETING

- TRACK PROTECTION MAIN IS NOON SIDING IS 1130
- HOSPITAL IS IN LIBBY ON 3RD & LOUISIANA.

0720 SAFETY MEETING ENDS BEGIN EQUIPMENT SET UP.

0737 BNSF ARRIVES ON SITE

0743 BRETT PETERSON GAVE US INFO AS FOLLOWS:
 MAIN 3046-6 WBS WSS
 RIVERVIEW TO WSS RIPLEY
 SIDING 246-7 ESS RIPLEY TO WSS RIPLEY

BOTH TRACKS ^{UNTIL} PACIFIC 1130

0811 DAVE WELCH STARTED SETTING UP SOIL SAMPLING PLOTS
 GENERATORS UP & RUNNING
 WEATHER STATION UP & RUNNING

Location MP 1312 Date 09-17-08
 Project / Client BNSF

CURRENT WEATHER CONDITIONS:

TEMP 38°F, CLEAR SKIES WITH VERY MINIMAL CLOUDS

0847 DAVE WELCH & AMANDA THORNTON DON TYVEK SUITS, BOOTIES, & PERSONAL PUMPS TO BEGIN TRESSPASSING ACTIVITIES

^{START} 0749 AMANDA 4441 BA-00003 SHEET 004869
 0749 DAVE 9586 BA-0004 SHEET 004870

0930 SCOTT CARNEY LEFT TO REPLACE ONE OF THE GENERATORS. IT STOPPED WORKING.

1001 BNSF GANG PASS MP 1312 HEADING WEST

1021 SCOTT CARNEY ARRIVED BACK FROM GETTING A NEW WORKING GENERATOR

1037 SAMPLING OF SOIL BEGINS

SAMPLE 1

RR- 00001

SP- 138460

> SHEET #
 005922

Location BT MP 1312Date 09-17-08Project / Client BNSF

DAVE WELCH COLLECTS 3 FINGERS
HIGH FULL OF SOIL IN A ONE GALLON
ZIPLOC[®] BAG FOR SAMPLING ANALYSIS.
1044 MATT LENZ TAKES GPS
LOCATION OF SAMPLE POINT (SP) 1

1048 **RR- 00002** SOIL SAMPLE
#2 IS TAKEN
SP- 138461 SHEET #005922

1048 MATT LENZ TAKES GPS LOCATION
OF SP 2

1049 LOW AMOUNT OF VERMICULITE (VISUAL)
FOUND IN SOIL

1057 **RR- 00003** SOIL SAMPLE #3
IS TAKEN
SP- 138462 SHEET #005922

1057 LOW AMOUNT OF ~~TA~~ VISUAL VERMICULITE
MOSTLY DISSEMINATED

1057 MATT LENZ TAKES GPS LOCATION
OF SP #3

Location MP 1312Date 09-17-08Project / Client BNSF

1105 **RR- 00004** SOIL SAMPLE
#4 IS TAKEN
SP- 138463 SHEET #005923

1105 LOW AMOUNT OF ~~VET~~ VISUAL VERMICULITE
FOUND IN SOIL (MOSTLY DISSEMINATED)

1105 MATT LENZ TAKES GPS LOCATION
OF SP #4

1113 **RR- 00005** SOIL SAMPLE #5
IS TAKEN
SP- 138464 SHEET #005923

1113 LOW AMOUNT OF VERMICULITE (VISUAL)
FOUND IN SOIL (MOSTLY DISSEMINATED)
PLOT OF COAL IN THE VICINITY

1113 MATT LENZ TAKES GPS LOCATION
OF SP #5

1122 **RR- 00006** SOIL SAMPLE #6
IS TAKEN
SP- 138465 SHEET #005923

1122 NO VERMICULITE FOUND IN SOIL
VISUAL

1122 MATT LENZ TAKES GPS LOCATION OF SP #6

Location MR 1312Date 09-17-08Project / Client BNSF

1129 **RR- 00007** SOIL SAMPLE #7
IS TAKEN
SHEET #005924

SP- 138466

1129 NO VISUAL VERMICULITE PRESENT
1129 MATT LENZ TAKES GPS LOCATION
OF SP#7

1138 **RR- 00008** SOIL SAMPLE #8
IS TAKEN
SHEET # 005924

SP- 138467

1138 NO VISUAL VERMICULITE FOUND
1138 MATT LENZ TAKES GPS LOCATION
OF SP#8

1147 **RR- 00009** SOIL SAMPLE #9
IS TAKEN
SHEET # 005924

SP- 138468

1147 LOW AMOUNT OF VISUAL VERMICULITE
ENCOUNTERED
1147 MATT LENZ TAKES GPS LOCATION OF
SP#9

Location MP 1312Date 09-17-08Project / Client BNSF

1156 **RR- 00010** SOIL SAMPLE
#10 IS TAKEN
SHEET #005925

SP- 138469

1156 LOW AMOUNT OF VISUAL VERMICULITE
ENCOUNTERED
1156 MATT LENZ TAKES GPS LOCATION
OF SP #10

1204 **RR- 00011** SOIL SAMPLE
11 IS TAKEN
SHEET #005925

SP- 138470

1204 LOW AMOUNT OF VISUAL
VERMICULITE ENCOUNTERED
1204 MATT LENZ TAKES GPS LOCATION
OF SP# 11

1214 **RR- 00012** SOIL SAMPLE #12
IS TAKEN
SHEET #005925

SP- 138471

1214 LOW AMOUNT OF VISUAL VERMICULITE
ENCOUNTERED
1214 MATT LENZ TAKES A GPS LOCATION
OF SP #12

14

Location MP 1312Date 09-17-08Project / Client BNSF

*OUT OF SEQUENCE

1233

RR- 00013

SOIL SAMPLE #13

IS TAKEN

SHEET # 005926

SP- 138472

1233

NO VISUAL VERMICULITE ENCOUNTERED

1233

MATT LENZ TOOK GPS LOCATIONS

OF SP#s 13, 14, & 15.

1254

RR- 00014

SOIL SAMPLE #14

IS TAKEN

SHEET # 005926

SP- 138473

*1245

TRAIN #
7407BNSF TRAIN PASSES BY. ALL
PERSONNEL CLEAR OF TRACKS ^{EAST} BOUND

1256

TRAIN #
5482ANOTHER EAST BOUND
TRAIN PASSES BY. ALL PERSONNEL
CLEAR OF TRACKS.

1306

COMMENCED SOIL SAMPLING.

1306

LOW AMOUNT OF VISUAL
VERMICULITE ENCOUNTERED

1316

RR- 00015

SOIL SAMPLE #15

IS TAKEN

SHEET # 005926

SP- 138474Location MP 1312Date 09-17-08

15

Project / Client BNSF

1316 NO VISUAL VERMICULITE PRESENT

1317 SOIL SAMPELING FOR TODAY

IS COMPLETE

1331 FLOW RATE OF PERSONAL PUMPS

AMANDA THORNTON 2.4 L/min

DAVE WELCH 2.8 L/min

NO FURTHER ENTRIES

AMANDA THORNTON 09-17-08

10 Location KOOTENAI SUBDIVISION Date 09-18-08
Project / Client BNSE

0600 ARRIVED ONSITE FOR BNSE SAFETY MEETING

0602 COUGAR CROSSED TRACKS IN FRONT OF US!

0610 BNSE GANG GATHERED FOR SAFETY MEETING

0611 - ONLY MAIN LINE TODAY 0730-1500 PK. TIME
- 2900'
- Tying UP AT KOOTENAI FALLS TODAY
- PPE FOR BNSE GANG IS GLOVES SUITS AND BOOTS

0630 BNSE GANG STRETCHES BEFORE WORK

PUMP STATION	SN#	SAMPLE #
0642 RYAN TUCKER	3932	LABORER 11
0644 JOSH SYNNOTT	8473	LABORER 12
0646 BRYCE VANDENBERG	6224	MACHINE 13
0648 MIKE COSSART	8354	OPERATOR 14
0650 KAGEN COX	9436	LABORER 15
0652 RODNEY ZIMMERMAN	3462	TAMPER 16

0655 BMR LEFT FOR KOOTENAI FALLS

0720 EMR ARRIVED ONSITE AT KOOTENAI FALLS (MP 1330.61331.9)

0924 EMR WAITED FOR BNSE CREW TO ARRIVE AT MP 1331.5. SAFETY TAILGATE MEETING HELD NOW.

17 Location MP 1331.5 Date 09-18-08
Project / Client BNSE

0932 - N. SIDE SIDING TRACK PROTECTION. TRAINS WILL BE COMMING THROUGH. EVERY MACHINE WILL KNOW WHEN TRAINS ARE COMMING

- SOIL ONLY ON NORTH SIDE FOR SAMPLING.

- NOTIFY BNSE PERSONNEL IN CASE OF EMERGENCY. HWY 2 INTO LIBRY FOR NON-CRITICAL EMERGENCY.

- DOUBLE READ (QC) PAPERWORK & INITIAL BEFORE HANDING IN TO CDM

- SOIL SAMPLE AD#'s AD 005568 ON EVERY SHEET.

0941 - SAFETY MEETING ENDED.

0948 - EMR ARRIVES AT JOB ACTIVITY SITE

1004 - AMANDA THORNTON & DAVE WELCH DON TYVEK SUITS & PERSONAL PUMPS

1006 - DAVE WELCH & AMANDA THORNTON TURN PERSONAL PUMP ON TO BEGIN TRESPASSING ACTIVITIES.

Location MP 1331.5 Date 09-18-08Project / Client BNSF* OUT OF SEQUENCE

1010	MATT LENZ DONS AND ACTIVATES PERSONAL PUMP. ALL PUMPS SET TO 2.8 L/MIN.
1024	WEATHER STATION UP & RUNNING CURRENT WEATHER 54.9°F CLEAR BLUE SKIES WIND SPEED VARIES 0.6-2.4 MPH. SUNNY.
1026	MAKE SURE & CHECK WEATHER STATION EVERY HOUR
* 1004	DAVE WELCH MARKS SOIL SAMPLE # LOCATIONS
1107	RR- 00016 SOIL SAMPLE #16 IS TAKEN SP- 138475 SHEET #005927
1107	NO VISUAL VERMICULITE SEEN.
1110	LABELS KEEP FALLING OFF OF SAMPLE BAGS.
1115	RR- 00017 SOIL SAMPLE #17 IS TAKEN SP- 138476 SHEET #005927
1115	NO VISUAL VERMICULITE (VV) SEEN

Location MP 1331.5 Date 09-18-08 19Project / Client BNSF

1118	RR- 00018 SOIL SAMPLE #18 IS TAKEN SP- 138477 SHEET #005927
1120	ACTUAL TRESSPASSETTS ON SITE OLD MAN & LADY FISHING W/ RR- 00018 2 SCHNOWSERS.
1120	NO VV SEEN.
1142	RR- 00019 SOIL SAMPLE #19 IS TAKEN SP- 138478 SHEET #006101
1142	NO VV ENCOUNTERED
NOTE: 18 MIN TIME SPAN BETWEEN SAMPLES 18 & 19 WERE DUE TO HAVING TO RETRIEVE FIELD SUPPLIES FROM TRUCK & SPEAKING WITH TRESSPASSETTS.	
1152	RR- 00020 SOIL SAMPLE #20 IS TAKEN SP- 138479 SHEET #006101
1152	LOW AMOUNT OF VV SEEN. DISSEMINATED VV.

Location MP 1331.5 Date 09-18-08Project / Client BNSF

1200

RR- 00021

SOIL SAMPLE #21

IS TAKEN

SHEET # 006101

SP- 138480

1200

LOW AMOUNT OF DISSEMINATED
VV ENCOUNTERED.

1213

RR- 00022

SOIL
SAMPLE # 22 IS

TAKEN

SHEET # 006102

SP- 138481

1213

LOW AMOUNT OF VV ENCOUNTERED

1227

RR- 00023

SOIL SAMPLE #23 IS

TAKEN

SHEET # 006102

SP- 138482

1227

LOW AMOUNT OF DISSEMINATED
VV ENCOUNTERED

NOTE

SAMPLE #24 WILL NOT BE USED
AND WAS NOT COLLECTED. WE
WILL RESUME AT #25. THIS WAS
MY MISTAKE BY PRELABELING
THE FORMS.

1312

GPS POINT TAKEN OF SAMPLE #23.

MP 1331.509-18-08

Project / Client

BNSF1313 GPS LOCATION TAKEN OF SOIL
SAMPLE #221314 GPS LOCATION TAKEN OF SOIL
SAMPLE #211315 GPS LOCATION TAKEN OF SOIL
SAMPLE #201316 GPS LOCATION TAKEN OF SOIL
SAMPLE #191316 GPS LOCATION TAKEN OF SOIL
SAMPLE #181317 GPS LOCATION TAKEN OF SOIL
SAMPLE #71318 GPS LOCATION TAKEN OF SOIL
SAMPLE #13NOTE ALL GPS LOCATION WERE
TAKEN BY MATT LENZ OF EMR1350 BNSF TRAIN PASSED BY NORTH
BOUND1417 2 TRESPASSERS CROSS TRACKS
TO GO FISHING FOR SALMON
1600 EMR LEFT
PREMISES

NO FURTHER ENTRIES
#07 AMANDA THORNTON

Location MP 1330.5 1331 Date 09-19-08
 Project / Client BNSF

Location MP 1330.5 1331 Date 09-19-08 23
 Project / Client BNSF

0555 ALLEMP TEAM ARRIVE ON SITE
 FOR BNSF SAFETY MEETING
 0603 ROW 6.28.3
 SAFETY MEETING 212 Injury FREE DAY
 JOB KOOTENAI SIDING
 GO 16
 GO 20
 SI 16
 610 FEET LEFT TO COMPLETE
 MAIN & SIDING TRACK PROTECTION
 ALTERNATION BETWEEN THE TWO
 TYING UP HERE FOR MONDAY
 CONCRETE WORK NEXT WEEK
 TYING WOOD UP AT TROY BY
 WED. OR THURS. NEXT WEEK
 GOOP SUITS & BOOTIES FOR BNSF
 EMPLOYEES PPE.
 - 406672 9146 CHAD
 GOHMAN TUES WOOD JOB

START TIME	SSN #	SAMPLE #
0631	RODNEY ZIMMERMAN 3662	TAMPER #19
0641	KAGEN COX 9480	LABORER #24
0633	JOSH SYNNOT 8473	MACHINE OPERATOR #20
0639	BRYCE VANDENBERG 6225	" #23
0637	MIKE COSSAIRT 8354	" #22

START TIME	SSN #	SAMPLE #
0635	RYAN TUCKER 3932	LABORER #21
0648	DAVE WELCH #4091	TURN PUMPS ON
	AMANDA THORNTON 4095	
	MATT LENZ 4099	
0707	CURRENT WEATHER CONDITIONS	
	50.2°F	
	WIND SPEED 0.6 MPH	
	CLEAR DAY WITH NO CLOUDS	
	NO RAIN FORECASTED.	
0707	WEATHER STATION UP & RUNNING	

SAMPLE #'S FOR EMR EMPLOYEES
 AMANDA THORNTON #BA-00024
 MATT LENZ #BA-00025
 DAVID WELCH #BA-00023

0754	RR- 00025	SOIL SAMPLE #25
		IS TAKEN
	SP- 138484	SHEET #006103
0754	NO VV SEEN	
0804	RR- 00026	SOIL SAMPLE #26
		IS TAKEN
	SP- 138485	SHEET #006103

Location MP 1330.5 1331 Date 09-19-08Project / Client BNSF

0804	NO VV SEEN IN SAMPLE #26
0813	RR- 00027 SOIL SAMPLE #27 IS TAKEN SHEET #006103 SP- 138486
0813	NO VV ENCOUNTERED
0821	RR- 00028 SOIL SAMPLE #28 IS TAKEN SHEET #006104 SP- 138487
0821	NO VV ENCOUNTERED
0832	RR- 00029 SOIL SAMPLE #29 IS TAKEN SHEET #006104 SP- 138488
0832	NO VV ENCOUNTERED
0842	RR- 00030 SOIL SAMPLE #30 IS TAKEN SHEET #006104 SP- 138489
0842	NO VV ENCOUNTERED
NOTE	ROADMASTER TODAY IS ROCKY LASORTE.
0935	SOIL SAMPLE 00025 GPS LOCATION TAKEN

Location MP 1330.5 1331 Date 09-19-08Project / Client BNSF

0936	GPS TAKEN OF SAMPLE #26
0937	GPS TAKEN OF SAMPLE #27
0938	GPS TAKEN OF SAMPLE #28
0940	GPS TAKEN OF SAMPLE #29
0941	GPS TAKEN OF SAMPLE #30
1218	EMR BREASS DOWN EQUIPMENT
1240	EMR LEAVES WORK SITE (ESTIMATED TIME)

NO FURTHER EXPLORATION
AMANDA THORNTON
9.19.08

Location 1331 MP TIE-UP

Date 9-22-08

Project / Client BNSF

0535 DAVE WELCH & AMANDA THORNTON ARRIVE ON SITE (EMPLOYEES).

- WEATHER 50°F & RAINING. ALSO RAINED LAST NIGHT.

9:00 AM
0600 ESS KOOTENAI FALLS & WSS KOOTENAI FALLS.

610' FRIDAY

1120' & 1400' TODAY

1120' WOOD CV ^{ACT 9-22-08} 1327

1400' CV ^{ACT 9-22-08} 1329A

1200 TIME TRAIL PROTECTION

0600 BNSF SAFETY MEETING

MAIN LINE IS LIVE AMTRAK WEST - BOUND.

[NOTE] ALL PUMPS SET TO 28 L/MIN.

START TIME	NAME	SSN	JOB	SAMPLE #
0621	RYAN TUCKER	3932	LABORER	27
0624	MARLECKSTROM	4489	LABORER	28
0626	COLBY CHRISTIE	7073	LABORER	29
0629	JOSH SYNNOT	8473	LABORER	30
0633	BRYCE VANDENBERG	1325	MACHINE OPER.	31
0636	MIKE COSSAIRT	8354	MACHINE OPER.	32

0715 EMR & BNSF LEAVE FOR WORK AREA
BNSF WILL MEET EMR AT MP 1329.8

Location MP 1329.8

Date 09-22-08 27

Project / Client BNSF

0939 WEATHER STATION UP & RUNNING
TEMP 54°F

WIND SPEED VARIABLE BETWEEN
7.8 MPH & 6.0 MPH

0941 BA-00031 MATT LENZ

0946 BA-00032 AMANDA THORNTON

0947 DAVE WELCH & JOHN STARR
ARE IN THE PROCESS OF SETTING
UP PERIMETER

1009 DAVE WELCH LEFT TO MAKE A
PHONE TO CLARIFY BNSF
DIRECTIONS.

1021 DAVE WELCH RETURNS TO MP 1329
[NOTE] ROADMASTER WAS NOT CLEAR
ON HIS WHITEBOARD OR VERBALLY
WHERE THEIR WORK ZONE WOULD
BE TODAY.

1025 EMR BROKE DOWN EQUIPMENT &
WENT TO MP 1329.8

1040 EMR ARRIVED AT MP 1329.8

1043 WEATHER STATION UP & RUNNING

1046 PERIMETER PUMPS BEING SETUP

1100 SOIL SAMPLE PLOTS SET UP

THIS 107

9-22-08

Location MP 1329.8Date 9-22-08Project / Client BNSF

1115	RR- 00031	SOIL SAMPLE #31 IS TAKEN SHEET #006105
1115	SP- 138490	
1115	NO VV SEEN	
1122	RR- 00032	SOIL SAMPLE #32 IS TAKEN SHEET #006105
	SP- 138491	
1122	NO VV SEEN	
1123	BEGIN TO RAIN AGAIN	
1128	RR- 00033	SOIL SAMPLE #33 IS TAKEN SHEET # 006105
	SP- 138492	
1128	NO VV SEEN	
<u>NOTE</u>	ALL SOIL SAMPLED TODAY IS COARSE SILTY-SAND WITH TOPSOIL & BALLAST INTERMIXED	
1133	RR- 00034	SOIL SAMPLE #34 IS TAKEN SHEET #006106
	SP- 138493	
1133	NO VV SEEN	

Location MP 1329.8Date 9-22-08Project / Client BNSF

1133	SOIL IS VERY WET	
1143	RR- 00035	SOIL SAMPLE #35 IS TAKEN SHEET #006106
	SP- 138494	
1143	NO VV SEEN	
1155	RR- 00036	SOIL SAMPLE #36 IS TAKEN SHEET #006106
	SP- 138495	
1150	LOW AMOUNT OF DISSEMINATED VV SEEN	
1200	RR- 00037	SOIL SAMPLE #37 IS TAKEN SHEET #006107
	SP- 138496	
1200	NO VV SEEN	
<u>NOTE</u>	LACK OF VV COULD BE DUE TO SOIL MOISTURE CONTENT BEING VERY HIGH.	
1208	RR- 00038	SOIL SAMPLE #38 IS TAKEN SHEET #006107
	SP- 138497	

Location MP 1329.8

Date 9-22-08

Project / Client BNSF

* OUT OF SEQUENCE

1209 THE SOIL SAMPLE #38 IS THE ONLY DRY SAMPLE TAKEN BUT WITH THE SAME COMPONENTS MENTIONED EARLIER

1209 NO VU SEEN

1210 SOIL SAMPLE ACTIVITY CONCLUDES

1227 GPS IS TAKEN OF SOIL SAMPLE PLOT #31

1229 GPS IS TAKEN OF SOIL SAMPLE PLOT #32

1230 GPS IS TAKEN OF SOIL SAMPLE PLOT #33

1231 GPS IS TAKEN OF SOIL SAMPLE PLOT #34

1232 GPS IS TAKEN OF SOIL SAMPLE PLOT #35

1234 GPS IS TAKEN OF SOIL SAMPLE PLOT #36

1235 GPS IS TAKEN OF SOIL SAMPLE PLOT #37

1236 GPS IS TAKEN OF SOIL SAMPLE PLOT #38

NOTE ALL GPS LOCATIONS WERE TAKEN BY MATT LENZ OF EMR

1237 GPS IS TAKEN OF WEATHER STATION
GPS IS TAKEN OF STATIONARY PUMP #1401
#BA-00034

1239 GPS IS TAKEN OF STATIONARY PUMP #836A
BA-00035

*1030 GENERATORS FOR STATIONARY PUMPS SWITCHED OUT.

NO FURTHER ENTRIES
AMANDA THORNTON

Location MP 1337. B TROY RAIL YARD Date 9-23-08

Project / Client BNSF

0540 DAEWELCH & AMANDA THORNTON
PROMEMO ARRIVE ON SITE

~~0540~~ 0545 DAEWELCH & JOHN STARR
TALK WITH ROADMASTER CHAD
BEAUMONT DOUGHMAN

0600 BNSF SAFETY MEETING COMMENCES
REGAGE CURVE MP 1337. B
1100 FT HIGH SIDE RIGHT HAND RAIL

START TIME	NAME	SSN	JOB	SAMPLE #
0628	KARL HARMS	1954	ANCHOR BOX OPER.	40
0631	JODY CROWE	5426	PLATE BLOCKER OPER	35
0632	BEN ROBERTSON	5372	LABORER	36
0635	CLINT EGERTS	3009	MACHING OPER	37
0636	CJ CAVEN	1405	SPICA PULLER	38
0638	JUSTIN GARRETT	1267	DRY LAGER	39
0640	MATT STASHICK	7132	LABORER	40
	STEWART STEWART	9955	LABORER	41
0631	DALE JOHNSON	5315	CRIBBER OPER	
0640	ALL PUMPS HUNG & STARTED.			
0710	TRESPASSER PUMP (AMANDA THORNTON) STARTED			
0720	WEATHER STATION UP & RUNNING TEMP 45.4°F - FOGGY WIND SPEED 0.6 MPH			

Location MP 1337 B TROY RAIL YARD Date 09-23-08Project / Client BNSF

0730 PERIMETER PUMPS STARTED

0819 TEMP 38°F

0831

RR- 00039

SOIL SAMPLE #39

IS TAKEN

SHEET # 006108

SP- 138498

0831

LOW VV SEEN

TEXTURE: SANDY SOIL WITH LOTS OF
WOOD & OIL & COARSE GRAVEL

0838

RR- 00040

SOIL SAMPLE #40

IS TAKEN

SHEET # 006108

SP- 138499

TEXTURE: SAME AS ABOVE

HARD TO SEE ANY VV WITH THIS SOIL

BEING SO SATURATED

0838

NO VV SEEN

0848

RR- 00041

SOIL SAMPLE #41

IS TAKEN

SHEET # 006108

SP- 138500

TEXTURE: SAME AS ABOVE

0848

LOW VV SEEN

Location MP 1337 B TROY RAIL YARD Date 09-23-08Project / Client BNSF*** OUT OF SEQUENCE DUE TO MACHINE THROWING
ROCKS**

0856

RR- 00042

SOIL SAMPLE #42

IS TAKEN

SP- 138501

SHEET # 006109

0856

LOW AMOUNT OF VV SEEN

TEXTURE: SAME AS BEFORE

* 0924

RR- 00043

SOIL SAMPLE #43

IS TAKEN

SHEET # 006109

SP- 138502**[NOTE]**RAIL WORKERS ARE NOT WEARING
RESPIRATORS NOR WERE THEY TOLD
TO DO SO

0913

RR- 00044

SOIL SAMPLE #44

IS TAKEN

SHEET # 006109

SP- 138503

0913

LOW VV SEEN

TEXTURE: SAME AS BEFORE

0924

RR- 00043

SP- 138502

LOW VV SEEN

Project / Client BNSF

0936

RR- 00045

SOIL SAMPLE #45

IS TAKEN

SHEET # 006110

SP- 138504

TEXTURE IS SAME AS BEFORE

0936

LOW AMOUNT OF VV SEEN

0947

RR- 00046

SOIL SAMPLE # 46

IS TAKEN

SHUT #006110

SP- 138505

0947

~~LOW AMOUNT OF WASTE~~

MEDIUM AMOUNT OF VV SEEN

1008

GPS OF SOIL SAMPLE #39 TAKEN

Wio

GPS OF SOIL SAMPLE # 40 TAKEN

1012

GPS OF SOIL SAMPLE #41 TAKEN

-1015

GPS OF SOIL SAMPLE #42 TAKEN

1017

GPS OF SOIL SAMPLE #43 TAKEN

1019

GPS OF SOIL SAMPLE #44 TAKEN

1021

GPS OR SOIL SAMPLES TAKEN

1025

GPS OF SOIL SAMPLE # 46 TAKEN

NOTE

NOW THAT THE SUN IS OUT & FOG HAS
CLEARED WE SEE VV EVERYWHERE!

1022

GENERATOR FOR STATIONARY PUMPS
ON SOUTH TRACKS WENT DEAD.

SAMPLES NOT SUBMITTED			
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Project / Client BNSF

NOTE OF MAJOR CONCERN ROADMASTER OF
RP-21 WAS TOLD BY DAVE WELCH OF EMR
THAT IT WOULD BE ADVISEABLE TO HAVE
HIS WORKERS WEAR RESPIRATORS, BASED
ON THE SITE HISTORY OF THE TROY
RAIL YARD. HIS WORKERS WERE NOT
EVEN INFORMED THAT THERE WAS
A THREAT. THE WORKERS AT LEAST
DESERVE THE INFORMATION TO MAKE A
PERSONAL CHOICE ON WHETHER OR NOT TO
DON A RESPIRATOR.

400 EMR LEFT FOR CDM

NO FURTHER ENTRIES
STANDARD THERMISTOR
BY 23-88

Location TROY YARD TIEUP Date 09-24-08Project / Client BNSF

0550 EMPLOYEES ARE ALL ON SITE AND SETTING UP EQUIPMENT TO OUTFIT BNSF EMPLOYEES WITH PERSONAL PUMPS.

0600 BNSF SAFETY MEETING COMMENCES TODAY EMR WILL MEET RP-21 AT 2ND JOB SITE AT CV 1339 LOW SIDE LEFT RAIL MP 1339.5, 1300' TIE UP AT YAKT, MP 1343.5 ACCESS - HWY 2 (W), RIGHT ON HUNSMILL RD HOOK TO THE LEFT. ~2-5 WESTBOUND TRAINS TO WATCH

OSHA FOR THIS MORNING.

START TIME	NAME	SSN	JOB	SAMPLE #
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0622	DALE JOHNSON	5315	ASSISTANT FOREMAN	43
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0624	JODY CROW	5426	DECLIPPER	44
------	-----------	------	-----------	----

0625	CJ CAVEN	1405	LABORER	45
------	----------	------	---------	----

0627	BEN ROBERTSON	5372	ASSISTANT FOREMAN	46
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TODD HUT 9-24-08

0629	ARTHUR MCKEE	2451	OPERATOR	47
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0631	DAVID RODRIGUEZ	8874	OPERATOR	48
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0659 EMR SAFETY MEETING

SOIL SAMPLING ACTIVITIES REQUIRE

LEVEL C PRE

NO CRIBBER TODAY (CONCRETE).

Location MP 1339.5 Date 9-24-08Project / Client BNSF

0857 WEATHER STATION UP & RUNNING

TEMP 47.3°F

WIND SPEED 0.6 MPH

FOGGY BUT THE SUN IS COMING THROUGH A LITTLE BIT.

0907 PERIMETER PUMPS UP AND RUNNING

NOTE DEFUNKED GENERATOR IS NOW WORKING AGAIN AFTER REPAIR AT RICKS RENTAL IN LIBBY, MT.

0920 DAVE WELCH PLOTS OUT SOIL

SAMPLING LOCATIONS.

0953 SOIL SAMPLING BEGINS

0955 SOIL SAMPLE #47

RR- 00047

IS TAKEN

SHEET # 006111

SP- 138506

0955 NO VV SEEN

TEXTURE: CLAY/SILT/SAND WITH COARSE GRAVEL. HARD PACKED

1002 SOIL SAMPLE #48

RR- 00048

IS TAKEN

SHEET # 006111

SP- 138507

1002 TEXTURE: SILTY SAND W/COARSE GRAVEL

Location MP 1339.5Date 9-24-08Project / Client BNSF

1002 CS CAVEN (BNSF) WAS WEARING ONE OF OUR PERSONAL PUMPS. HE TOOK OFF THE PUMP & LEFT IT ON THE BACK OF A PIECE OF EQUIPMENT. ANOTHER BNSF EMPLOYEE FOUND THE PUMP & IS NOW WEARING IT. I WILL ADD HIS NAME WHEN I CAN GET IT. CS WAS WEARING SAMPLE #45.

1002 NO UV SEEN IN SOIL SAMPLE #48

1011

RR- 00049

SOIL SAMPLE #49

IS TAKEN

SHEET #006111

SP- 138508

TEXTURE: CLAY / SILT / SAND & A LITTLE BIT OF BALLAST

1011

NO UV SEEN

RR- 00050

SOIL SAMPLE #50

IS TAKEN

SHEET #006112

SP- 138509

TEXTURE: SAME AS ABOVE

1011

LOW AMOUNT OF UV SEEN

Location MP 1339.5Date 9-24-08Project / Client BNSF

1027

RR- 00051

SOIL SAMPLE #51

IS TAKEN

SHEET #006112

SP- 138510

TEXTURE: SAME AS ABOVE BUT OLDER / DARKER SOIL

1027 LOW UV SEEN

1037

RR- 00052

SOIL SAMPLE #52

IS TAKEN

SHEET #006112

SP- 138511

TEXTURE: SAME AS ABOVE

1037 LOW AMOUNT OF UV SEEN

1047

RR- 00053

SOIL SAMPLE #53

IS TAKEN

SHEET #006113

SP- 138512

TEXTURE: SAME AS ABOVE

1047 CAN SEE UV ON SURFACE OF SOIL
LOW UV SEEN AT DEPTH

1102

RR- 00054

SOIL SAMPLE #54

IS TAKEN

SHEET #006113

SP- 138513

1102 SOIL SAMPLE #54 TEXTURE: SAME AS BEFORE

1102 VV IS SEEN ON SURFACE SOIL
LOW VV SEEN AT DEPTH

1110 SOIL SAMPLE #55
RR- 00055 IS TAKEN
SHEET # 006114

SP- 138514

TEXTURE: SAME AS ABOVE

1110 VV IS SEEN ON SURFACE SOIL
LOW VV SEEN AT DEPTH

1135 GPS OF SOIL SAMPLE #49 IS TAKEN

1137 GPS OF SOIL SAMPLE PLOT #50 IS TAKEN

1138 GPS OF SOIL SAMPLE PLOT #51 IS TAKEN

1139 GPS OF SOIL SAMPLE PLOT #52 IS TAKEN

1140 GPS OF SOIL SAMPLE PLOT #53 IS TAKEN

1143 GPS OF SOIL SAMPLE PLOT #54 IS TAKEN

1144 GPS OF SOIL SAMPLE PLOT #55 IS TAKEN

NOTE ALL GPS RECORDINGS WERE TAKEN BY
MATT LENZ OF EMP.

1148 GPS OF STATIONARY PUMP TAKEN BA-00053

1149 GPS OF STATIONARY PUMP TAKEN BA-00052

1150 GPS OF STATIONARY PUMP TAKEN BA-00054

1151 GPS OF STATIONARY PUMP TAKEN BA-00055

NOTE THE NAME OF THE BNSF EMPLOYEE
THAT DOWNED CJ'S PUMP (#45)
WAS "SMILEY." THIS IS THE ONLY
INFORMATION WE WERE ABLE TO
GATHER.

1400 GML LEFT FOR CDM.

NO FURTHER ENTRIES
AMANDA THORNTON
9-24-08

tion TROY YARD TIE-UP RP-15 Date 9-25-08
 act / Client BNSF

Location MP 1341 Date 9-25-08
 Project / Client BNSF

EMR EMPLOYEES ALL ARRIVE AT
 TROY YARD TIE-UP TO MEET RP-15
 GANG
 BNSF SAFETY MEETING COMMENCES
 1341 LEFT HIRSA 600' THEN
 RP-15 WILL BE OUT OF CUL.
 BNSF SAFETY MEETING CONCLUDES
 STRETCHING BEGINS.

SAMPLES

NAME	SSN#	JOB # SSN# 9-25-08	SAMPLE #
JOSH SYNNOT	8473	LABORER	51
RYAN TUCKER	3932	LABORER	52
MIKE COSSART	8354	machine oper.	53
VICTOR BACHMIR	2767	machine oper.	54
RODNEY ZIMMERMAN	3662	LABORER	55
KAGEN COX	9430	LABORER	56

EMR ARRIVES AT MP 1341.
 EMR SAFETY MEETING. LEVEL D PPE
 6 HOUR TRAIL PROTECTION 0600-1000
 WEATHER STATION UP & RUNNING.
 TEMP 49.8°F
 WIND SPEED 0.6 MPH
 PERIMETER PUMPS UP & RUNNING.

0730 BNSF CREW BUS ARRIVES
 0755 **RR- 00056** SOIL SAMPLE
 #56 IS TAKEN
SP- 138515 SHEET #00615
 0755 NO UV SEEN
 TEXTURE: SANDY SILT WEATHERED
 ROCK / BALLAST
 0803 **RR- 00057** SOIL SAMPLE
 #57 IS TAKEN
SP- 138516 SHEET #00615
 TEXTURE: SAME AS ABOVE
 0803 NO UV SEEN
 0812 **RR- 00058** SOIL SAMPLE
 #58 IS TAKEN
SP- 138517 SHEET #00615
 TEXTURE: SAME AS ABOVE
 0812 NO UV SEEN
 0822 **RR- 00059** SOIL SAMPLE #59
 IS TAKEN
SP- 138518 SHEET #00616

Location MP 1341Date 9-25-08Project / Client BNSF0822 ~~SO~~ ^{ACT 9-25-08} NO VU SEEN ON SAMPLE

#RR-00059

TEXTURE: SAME AS BEFORE

0833

RR- 00060

SOIL SAMPLE #60

IS TAKEN

SHEET #006116

SP- 138519

TEXTURE: SAME AS BEFORE

0833

NO VU SEEN

0844

RR- 00061

SOIL SAMPLE #61

IS TAKEN

SHEET #006116

SP- 138520

TEXTURE: SAND W/ LITTLE GRAVEL

NO VU SEEN

0848

RR- 00062

SOIL SAMPLE #62

IS TAKEN

SHEET #006117

SP- 138521

TEXTURE: SANDY W/ LITTLE GRAVEL

0848

NO VU SEEN

0918

GPS SAMPLE LOCATION OF #56 TAKEN

0919

GPS LOCATION OF SOIL SAMPLE #57 TAKEN

0920

GPS LOCATION OF SOIL SAMPLE #58 TAKEN

0922

GPS LOCATION OF SOIL SAMPLE #59 TAKEN

Location MP 1341Date 9-25-08Project / Client BNSF

0923 GPS OF SOIL SAMPLE #60 TAKEN

0924 GPS OF SOIL SAMPLE #61 TAKEN

0925 GPS OF SOIL SAMPLE #62 TAKEN

0927 GPS OF STATIONARY PUMP BA-00068

U BA-00067 TAKEN

0927 GPS OF STATIONARY PUMP BA-00066
TAKEN

0929 GPS OF STATIONARY PUMP BA-00063

U BA-00064 TAKEN

~~0929 GPS OF STATIONARY PUMP BA-00064~~

0930 GPS OF WEATHER STATION TAKEN

0930 GPS OF STATIONARY PUMP #BA-00065
TAKEN**NOTE** BEGAN RAINING NOW
ALL GPS LOCATIONS TAKEN BY
MATY LENZ OF GMR

Libby, MT & Troy, MT
BNSF Rail Maintenance
Activity Based Sampling
Fieldbook # 2 (ABS)

Start Date
09-17-08



"Rite in the Rain"

ALL-WEATHER
ENVIRONMENTAL

No. 550

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



ALL-WEATHER ENVIRONMENTAL FIELD BOOK

Name _____

Address _____

Phone _____

Project _____

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
Left Page	Right Page	Polydura Cover	Fabrikoid Cover
Columnar	1/4" Grid	Item No. 550	Item No. 550F

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[illegible]

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147 Error codes, Hazardous classifications, Container types
148 Sampling guidelines (Liquids)
149 Sampling guidelines (Solids)
150 Approximate Volume of Water in Casing or Hole, Ground Water Monitoring Well
151 PVC Pipe casing tables
152 Soil Classification
153 Soil Classification
154 Conversions (Length, Weight, Volume, Temp, etc...)
155 Conversions (Concentrations, Volume/Flow or Time, Velocity, Acceleration)
156 Maximum Concentration of Contaminants for the Toxicity Characteristic

0600: Arrive at BNSF safety meeting
0630: Personal Pumps started for
(two) activity based samples & OSHA (six)
0700: EMR leaves safety meeting site
to Ripley MP-1312.
0710: EMR holds tailgate safety
meeting. Begin setting up
stationary pumps
0730: Generator not working properly.
Not enough power for south side
pumps
0735: North side pumps started
0747: Trespasser ABS samples started.
0830: Scott Carney leaves site to
return generator
0850 M. Lenz begins videotaping
track maintenance crew
0910: Scott C back on site with new
generator.
0915 Pumps on south side of track
* started
1035: Cribber passed pump areas
1144: Pumps check and rates unchanged
Ontonagon pump dropped from 2.8
to 2.5.

Location MP 1312 Date 9/17/08
 Project / Client BNSF-ROW

1200: Pumps checked and rates are unchanged

1315 Anchor machine passes pumps

1250: stationary pump samples collected

1343 ML 9/17/08 Trespasser samples taken

1400 EMR offsite

ML 9/17/08
BA- 00001

ABS
 started 0636 2.8 lpm
 stopped 1436

ML 9/17/08
BA- 00002

ABS
 started 0636 2.8 lpm
 stopped 1436

ML 9/17/08
BA- 00003

ABS
 0749 start 2.8 lpm
 1348 stop 2.8 lpm

ML 9/17/08
BA- 00004

ABS
 start 0749 2.8 lpm
 stop 1343

ML 9/17/08
BA- 00005

ABS
 0753 start 2.8 lpm
 1400 stopped

ML 9/17/08
BA- 00006

> 0911 start 7.6 lpm
 1305 stop

SP- 138440

0912 start 7.6 lpm
 1304 stop

ML 9/17/08
BA- 00007

SP- 138441

Location MP-1312 Date 9/17/08
 Project / Client BNSF-ROW

ML 9/17/08

BA- 00008

0734 start
 1255 stop 7.6 lpm

SP- 138442

ML 9/17/08

BA- 00009

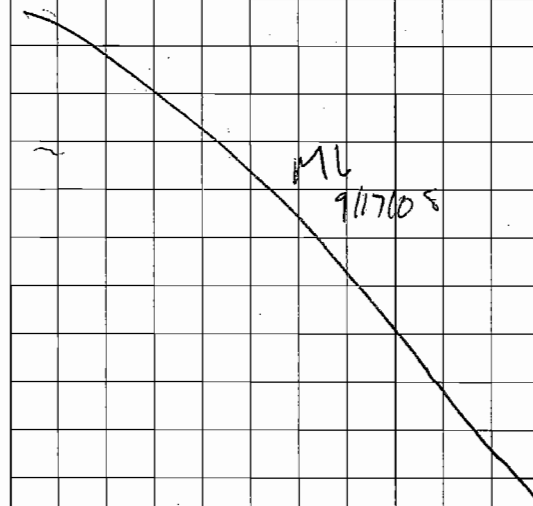
0737 start
 1253 stop 7.6 lpm

SP- 138443

ML 9/17/08

BA- 00010

Blank



Location MP-1331.5 Date 9/18/08Project / Client BNSF-ROW

ML/	Engle Victor BA- 00011	0638 start 1502 stop	1.4 lpm
ML/	Victor Eric P BA- 00012	0648 start 1459 stop	1.4 Lpm
ML/	Dave BA- 00013	1000 start 1555 stop	2.8 Lpm
MY	Amanda BA- 00014	1000 start 1555 stop	start 2.8 stop 2.6
ML/	Matt BA- 00015	1015 start 1556 stop	started 2.8 stop 2.7
ML/	stationary BA- 00016	0958 start 1550 stop	7.6 Lpm
ML/	SP-138444 BA- 00017	0958 start 1550 stop	7.6 LPM
ML/	SP-138445 BA- 00018	1011 start 1545 stop	7.6 LPM
ML/	SP-138446 BA- 00019	1012 start 1544 stop	7.6 LPM
ML/	SP-138447 BA- 00020	Blank	

Location MP-1331.5Date 9/18/08Project / Client BNSF-ROW

0600	safety meeting at crossroads
0630	start activity based sampling
0700	Offsite
0730	Arrive at MP 1331.5
	EMR decides where sampling should occur, safety meeting
0745	EMR prepares for BNSF Track personnel to reach Sampling area
0900	BNSF workers approaching
0930	Pumps (stationary) started
0950	Trespasser pumps started
1015	Tie pullers pass by
1030	Speed swing & plate puller pass
1100	J. Starr checks stationary pumps Flow Rates have not changed
1120	Tie plugger passes by
1130	Cribber passes by
1136	M. Lenz offsite to resolve GPS issues
1219	Rail reset crane to the end of work area 1st equipment to end since Cribber.

Location MP 1331.5 Date 9/18/08
 Project / Client BNSF-ROW

- 1300 M. Lenz returns and takes GPS coordinates of soil sample areas and stationary pumps
- 1340 Reset crane and welding truck stopped & have been for 30 minutes
- 1345 ABS pumps checked for flow rate
 Matt's pump at 2.7 Lpm
 Amanda's pump at 2.4 Lpm
 Dave's pump at 2.8 Lpm
- 1350: Train passes by
- 1400: ML GPS station
- 1540: Last of equipment passes
- 1545: Pull stationary samples
- 1556: Pull trespasser pump samples
- 1615: Downloaded Met Data to laptop
- 1630 off site

Location MP-1330.5 1331 Date 9/19/08
 Project / Client BNSF-ROW

- 0645: Arrive to BNSF safety meeting
- 0648: Start BNSF personal samples
- 0715: Train passes by
- 0720: Stationary pumps set up and started
- 0730: Trains have been passing on main work will begin shortly
- 0740: Speed swing
- 0750: Train passes on main
- 0808: Tie pulleys pass
- 0810: Workers cutting rail
- 0815: EMR soil sampling site location.
- 0820: EMR videotapes work
- 0830: M. Lenz checks personal pumps
 Amanda's pump dropped from 2.8 to 2.7 Lpm
 Dave & Matt's still at 2.8 Lpm
- J. Starr checks stationary pumps
- 0835: Rail moved off siding
- 0840: work has stopped due to inoperable machine
- 0850: Reset crane moves inoperable machine off siding
- 0900: Tie plugger passes soil sample
- 0940: Paul reset crane passes.
- 0941: welding truck passes

Location MD-1331 ML 9/19/08 Date 9/19/08
 Project / Client BNSF-ROW

0920: Dave Welch gives personal sample
 to John Starr, Dave leaves
 site to make phone call regarding
 next week

0945: Mlene takes GPS points at
 soil, Airg amphet, and Met station

0950: Spike ~~puller~~ passes
 ML
 9/19/08

1005: Anchor machine passes

1110: Spike magnet passes.

1130: CBM offsite

1135 Dave returns to site

1140 Last of equipment passes.

1150 EMR pulls stationary pumps

1200 EMR begins taking down equipment

1230: EMR pulls Trespasser samples

1300: EMR offsite

Location MD-1331 ML 9/19/08 Date 9/19/08
 Project / Client BNSF-ROW

BA-00021 start 0630 2.8 Lpm ML 9/23/08
 stop 1223

ML
 BA-00022 start 0628 2.8
 stop 1231

ML
 BA-00023 start 0648 2.8 Lpm
 stop 1231

ML
 BA-00024 start 0648 2.6 Lpm
 stop 1241

ML
 BA-00025 start 0648 2.8 Lpm
 stop 1241

ML
 BA-00026

ML
 SP-138448 0729 start 7.6 Lpm
 1147 stop

ML
 BA-00027 Blank

ML
 BA-00028 0729 start 7.6 Lpm
 1148 stop

ML
 SP-138449

Location MP-1329.8 ML 9/23/08 Date 9/22/08
 Project / Client BNSF
Rainy, cloudy. 54°F

0600:	safety meeting
0630:	started BNSF ABS personal pumps Flow 2.8 Lpm
0700:	Rain starts to fall. EMR goes offsite to determine if sampling is to be performed
0900:	OK to sample given by Scott Carney. Rain has stopped
0940:	M. Lenz & Amanda start trespasser pumps at 2.8 Lpm
0950:	EMR is in wrong location. work Thought to be at 1329 is more at 1329.5. EMR Moves to new location at 1328.
1050:	Dave & stationary ABS pumps started.
1100:	Anchor ^{puller} and speed swing have already passed.
1110:	Workers are grinding and blowing concrete ties
1120:	Rain starts
1130:	Amanda T. and Dave W. start sampling soil. Rain stopped
1159:	Rail Reset crane passes by

Location MP-1329.8 Date 9/22/08
 Project / Client BNSF ML 9/23/08

1210:	Welding truck passes by
1215:	M. Lenz checks personal pumps on trespassers. Mike's pump down to 2.7 Lpm Amanda's pump 2.7 Lpm Dave's pump 2.8 Lpm
1220:	Rail anchors being set
1300:	Last of equipment passes
1318:	BNSF personal samples pulled
1458:	Pumps pulled EMR offsite

BA- 00029

start 0629 2.8
stop 1318 Lpm

BA- 00030

start 0629 2.8 Lpm
stop 1318

BA- 00031

start 0941 2.6 Lpm
stop 1435

BA- 00032

start 0946 2.7 Lpm
stop 1435

BA- 00033

start 1030 2.8 Lpm
stop 1425

BA- 00034

start 1051 7.6 Lpm
stop 1437

SP- 138450

Location MP-1329.8 Date 9/22/08
 Project / Client BNSF mr
9/23/08

BA- 00035

SP- 138451

BA- 00036

start 1057
 stop 1437 7.6 Lpm

Blank

Location MP-1337 Date 9/23/08
 Project / Client BNSF
Foggy, Cloudy 38°F

0600: Safety meeting Troy Depot
 0630: Pumps started
 0700: Move to location begin setup
 0720: All Trespasser pumps have been started
 0721: AT 0715 rail was already being cut.
 0727: South stationary pumps started
 0730: Spike puller passes
 0745: North side stationary pumps started
 0756: Anchor puller passes
 0815: Cooper passes
 0835: Rail expander passes
 0840: Cribber passes
 0849: Rail reset crane puts new rail in place
 0913: Spikers pass
 0920: ML checks Trespasser pumps.
 ML's pump down to 2.7 Lpm
 AT pump down to 2.7 Lpm
 DW pump down to 2.6 Lpm
 0930: ML checks pumps on North & South side of tracks (stationary)

Location MP-1337Date 9/23/08Project / Client BNSF

940 The "bomb" passes by
 1000 AT&DW finish soil sampling
 015 Muenz takes GPS points
 of stationary pumps soil
 and met station
 1020 1 south side of track generator
 not working, can't restart
 BA-00043 & BA-00042
 Pump Fault
 1030 Last of equipment passes
 by
 1050 EMR begins take down
 1150 EMR pulls stationary and personals

BA- 00037

BA- 00038

BA- 00039

BA- 00040

BA- 00041

Location _____

Date _____

Project / Client _____

BA- 00042

SP- 138452

BA- 00043

SP- 138453

BA- 00044

SP- 138454

BA- 00045

SP- 138455

BA- 00046

Blank

124

Location MP-1339.5Date 9/24/08Project / Client BNSF48°F, cloudy

- 0600: BNSF safety meeting at Troy yard.
- 0620: ABS personnel started for BNSF personnel
- 0645: EMR will sample second stretch of track.
- 0710: EMR leaves to pick up fixed generator from Rick's Rental in Libby
- 0858: EMR onsite. Begins unpacking equipment.
- 0908: Personal Trespasser samples have been turned on running at 2.8 Lpm. Met station running
- 0912: stationary pumps running at 7.6 Lpm.
- 0915: Declipper machines pass by removing clips holding rail to concrete ties
- 0930: Magnet Machine passed by
- 0945: Rail reset crane passes by setting in new rail
- 1000: J. Starr checks stationary pumps. All running at 7.6 Lpm.

Location MP-1339.5Date 9/24/08Project / Client BNSF

- 1005: soil sampling started at 0930
- 1015: Leaf blower passes by cleaning of concrete ties. Visible dust.
- 1105: Grasper passes by
- 1115: Welding truck passes
- 1120: Tamper passes
- 1122: Amanda and Dale Welch finished sampling soil
- 1130: M. Lenz takes GPS points at soil locations and ABS stationary samples
- 1155: The bomb passes by. Anchors are set by workers. Machine follows and locks into place.
- 1225: Last of equipment passes
- 1309: J. Starr ~~now~~ goes to Yank yard to take ~~off~~ ^{off} ABS
- 1500: EMR OFFsite

ML
9/24/08
ML
9/24/08
ML
9/24/08
ML
9/24/08

BA- 00047

BA- 00048

BA- 00049

BA- 00050

start	1309	0617	2.8 Lpm
stop	1309		
start	0619		2.8 Lpm
stop	1315		
start	0907		2.7 Lpm
stop	1359		
start	0907		2.7 Lpm
stop	1400		

Location MP-1339.5 Date 9/24/08Project / Client BNSF

BA- 00051

start 0907
stop 1400 2.7 Lpm

BA- 00052

0909 start
stop 1243 7.6 Lpm

SP- 138456

BA- 00053

start 0910
stop 1243 7.6 LpmML
9/24/08
SP- 138457

BA- 00054

start 0911
stop 1246 7.6 Lpm

SP- 138458

BA- 00055

start 0911
stop 1246 7.6 Lpm

SP- 138459

BA- 00056

Field Blank

BA- 00057

Lot Blank

Location MP-1341Date 9/25/08Project / Client BNSF

48°F, Cloudy,

BA- 00058

start 0623
stop 0925 2.8 Lpm

BA- 00059

start 0625
stop 0924 2.8 Lpm

BA- 00060

start 0653
stop 1030 2.8 Lpm

BA- 00061

start 0655
stop 1040 2.8 Lpm

BA- 00062

start 0656
stop 1031 2.8 Lpm

BA- 00063

start 0728
stop 1002 7.6 Lpm

SP-138460

Co located sample
start 0728
stop 1002 7.6 Lpm

BA- 00064

SP-138460

BA- 00065

start 0728
stop 1003 7.6 Lpm

SP-138461

BA- 00066

start 0725
stop 0959 7.6 Lpm

SP-138462

Location MP-1341Date 9/25/08Project / Client BNSF**BA- 00067**

SP-138463

start 0725

stop 1000

7.6 rpm

BA- 00068

SP-138463

co located sample

start 0725

stop 1000

7.6 rpm

0600 BNSF safety meeting at Troy yard
 0620 ABS samples started on BNSF workers
 0700 Arrive at MP-1341 start Trespasser
 ABS samples. set up weather
 station. safety meeting
 0725 start stationary samples
 BA-00064 & BA-00068
 are co-located samples
~~0730~~ 0730 EMR starts soil sampling
 0731 Clip supply passes to the west
 0732 Declipper passes
 0738 Declipper passes
 0745 speed swing passes to east
 0749 speed swing passes to west
 0757 crew prepping ties
 0805 Gooper passes
 0824 welding truck passes

Location _____

Date _____

Project / Client _____

0848

Bomb, ^{passes} spiker

0853

spiker passes

BA- 00069

Field Blank

0900

Magnet machine passes

0920

All machines passed

0930

Starts raining

0931

Pumps checked for flow

0

Atlantic's 2.8

M. Lenz 2.8

Taves 2.7

All stations ~~2.7~~ 2.6 Lpm

1000

stationary pump samples
pulled

1030

Met station downloaded
Rain stopped light mist, rain
did not accumulate

ABS personals pulled

1040

Personal Trespasser pumps pulled

1050

Final cleanup

1059

EMR off site

Video Log

Disc Time

9/17/08 MP-1312

Disc 1

.01 sec BNSF safety meeting
 26 sec Pumps (ABS) assigned to rail workers

43 sec Air Monitoring Area

1.00 min spike puller

1.3 min crew working

23 min cribber machine

3 min cribber passing

4.20 min Rail reset crane

6.36 min Rail work

7.3 min line of machines

8.4 min Anchor machine

8.41 min Magnet pulling spikes For Scrap

9.3 min soil samples

9/18/08 MP-1331.5

9.41 Rail reset crane

10.4 Trespasser start sampling

11.24 360° view sampling Area road work

12.20 speed swing

12.50 Ballast being moved

13.56 Rail work

14.04 Trespassers (real) on tracks

Video Log (cont.)

9/18/08 1331.5

Disc 1

15.39 min welding Truck
 15.5 Air Sampling Area
 Met station

18.01 - Train passing

18.22 worker with pump

18.40 spiker machine magnet passing

9/19/08 MP-1331

19.15 Met station location

20.05 360° view of sample Area

20.50 worker cutting rail

21.19 Rail Maintenance

~~9/22/08~~ 9/19/08 MP-1331

Disc 2

.01 sec soil samplers

.21 south side of rail not
 Air sampled

.56 Rail Reset crane

1.15 Rail Maintenance

1.59 Machine inoperable (hydraulic line)

2.29 Crane removing machine

5.45 Ballast being moved

6.06 Grinding rail - welding Truck

Location _____ Date _____

Project / Client Video Log

9/22/08 MP-1329.8

8.09 360° view of sampling Area
 8.40 workers using leaf blower
 9.10 Air samples
 9.30 Rail work
 1000 Mile post location

9/23/08 MP-1337

1001 360° of work Area
 1030 spike puller
 1130 Goopers applying adhesive
 1140 Rail work
 1200 The 'Bomb' machine

9/24/08 MP-1339.5

1230 Anchor puller/Declipper
 1300 360° of work area
 1400 Goopers
 1430 The bomb machine
 1450 workers putting clips on ties

9/25/08 MP-1341

1500 360° of work area
 1550 Declipper
 1630 Rail work
 1712 soil samplers
 1730 rail reset crane
 1740 The bomb

Location _____ Date _____

Project / Client _____

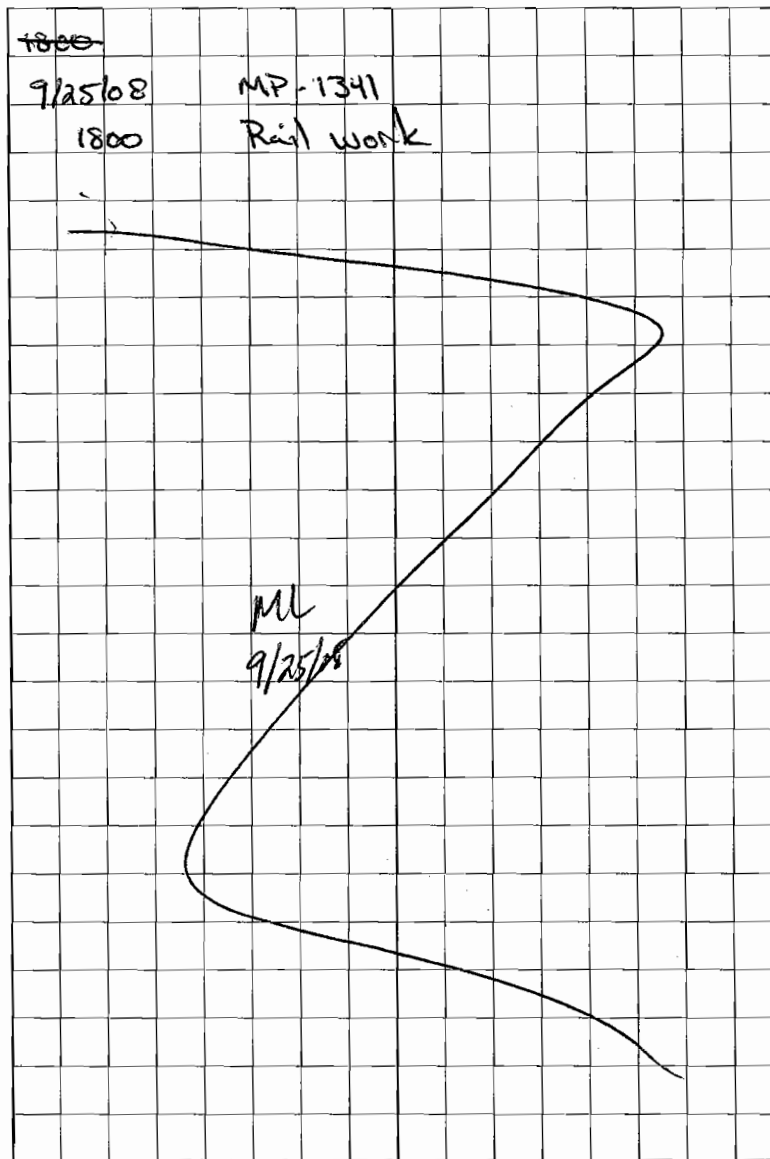
~~1800~~

9/25/08

MP-1341

1800

Rail work

ML
9/25/08



APPENDIX F

FIELD CHANGE ORDERS

Field Change Order (FCO) #17-1

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

The flow rates on ABS monitors could not reach 5 L/min (most could reach 2.8 L/min) – had to reassess using higher sensitivity (0.0024 cc-1), instead of original target sensitivity of 0.001 cc-1).

The reduced flow rates led to extending the sampling period from 2 and 4 hr/event to 6 and 8 hr/event.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #17-2

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

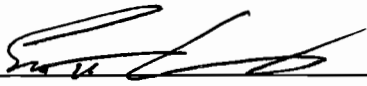
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes ABS sampling for two onlooker trespassers, but during sampling, only one onlooker trespasser was sampled. However, this receptor was located near stationary samples, which should adequately characterize air concentrations near the maintenance activities.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #17- 3

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project

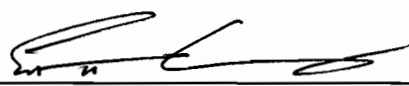
DESCRIPTION OF CHANGE AND RATIONALE

The SAP was written assuming that all train activity on both tracks (main and siding) would be halted during maintenance activities. However, Day 1 maintenance activity occurred on a track siding and after several hours into the maintenance activities, the main track opened to passing trains.

As a result, passing train activities were noted in the field logbook.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #17- 4

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes ABS sampling for a pedestrian trespasser away from maintenance activities, but during sampling, the pedestrian trespassers walked in areas where maintenance work was not occurring, but also walked in areas where maintenance work was occurring. The nature of the track protection is that maintenance activities will occur for the entire length of track protection.

The resulting ABS samples for the pedestrian trespasser may be higher due to the presence of maintenance activities.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #17- 5

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes equipment decontamination procedure for soil sampling procedure and Dave (soil sampler) mentioned that for grab samples that need to be discrete, wrapping soil sampling equipment (trowel) in aluminum foil (which was written for composite samples) after each grab sample collection seems redundant and time-consuming. Instead, the soil sampling equipment (trowel) is decontaminated using a two stage process consisting of Alconox solution and deionized water and dried after each sample. The soil sampling equipment (trowel) was stored in a clean zip-lock bag between each sample point.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #17- 6

DATE: Wednesday, September 17, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project


DESCRIPTION OF CHANGE AND RATIONALE

Event duration for the worker is variable (up to 10 hr days) and not controlled by sampling design team. Sample team can only control turning on pumps in the morning (approximately 6:30 am) and picking pumps up at the end of the working day (late afternoon) – had to reassess flow rate as setting ABS worker pumps to 2.8 L/min for roughly 10 hour sampling event (6:30 am to 4:30 pm) yielded filter loading.

Reassessed flow rate for worker to avoid filter loading for next sampling event.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/17/08

Field Change Order (FCO) #18-1

DATE: Thursday, September 18, 2008

ADDRESS: BNSF ROW

PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Scheduled maintenance work area was shorter in length with less exposed soil than sampling activities from Day 1. Therefore, number of soil samples decreased from 15 to 9 samples to suit shortened maintenance length and exposed soil conditions.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/18/08

Field Change Order (FCO) #18-2

DATE: Thursday, September 18, 2008

ADDRESS: BNSF ROW

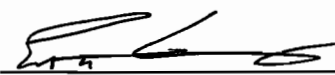
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Reassessed flow rate for worker to avoid filter loading for sampling event due to previous day's filter loading. Set flow rate from 2.8 L/min to 1.0 L/min to see if loading would still be an issue.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/18/08

Field Change Order (FCO) #18-3

DATE: Thursday, September 18, 2008

ADDRESS: BNSF ROW

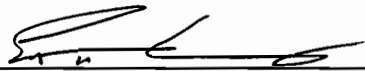
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Note that sampling on Day 1 occurred in a very dry dusty location, with resulting filter loading on worker ABS samples; whereas, Day 2 sampling location was also dry, but significantly less dusty (probably due to minimal exposed soil, and no dirt access road alongside trackage).

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/18/08

Field Change Order (FCO) #19-1

DATE: Friday, September 19, 2008

ADDRESS: BNSF ROW


PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Scheduled maintenance work was less than 1,000 feet in length. Therefore, worker ABS sampling period limited compared to Day 1 and Day 2 sampling. Modified sampling plan to suit shortened maintenance length and duration.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/19/08

Field Change Order (FCO) #22-1

DATE: Monday, September 22, 2008

ADDRESS: BNSF ROW

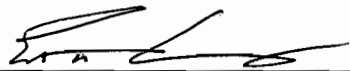
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

The SAP called for ABS sampling only during dry conditions, since it was based on EPA guidance. Sampling on this day event included light to heavy rain and was completed . Soil sampling, ABS and stationary air sampling was completed in otherwise normal fashion.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT:  _____ DATE: 9/22/08



APPENDIX G

AIR SAMPLE LABORATORY REPORTS

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:55:51 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Test: TEM ISO 10312

Matrix Air

TAT: 120 Hour

Qty: 14

Acct Sts:

Slsprsn: epodell

Logged: rmahoney

Date: 10/21/2008

Inter-Lab Sample Transfer

Samples Relinquished: _____ Date: _____

Samples Received: _____ Date: _____

Package Mailed to Westmont: _____ Date: _____

Method of Delivery: _____

Includes: (Circle)

Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Sample ☒ Acceptable
Condition: ☐ Unacceptable

Comments

Initial Prep (Initials/Lab): KB **Date:** 10/21/08

Filter Prep (Initials/Lab): _____ **Date:** _____

Grid Prep (Initials/Lab): KB **Date:** 10/22/08

For Special Projects Use Only:

QC Selection: _____ **Date:** _____

Date Package Review: KL **Date:** 2/26/09

Date Package Mailed: en **Date:** 3/2/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0001	BA-00003		10/26/2008 9:57:00 AM
270801091	270801091-0002	BA-00004		10/26/2008 9:57:00 AM
270801091	270801091-0003	BA-00013		10/26/2008 9:57:00 AM
270801091	270801091-0004	BA-00014		10/26/2008 9:57:00 AM
270801091	270801091-0005	BA-00023		10/26/2008 9:57:00 AM
270801091	270801091-0006	BA-00024		10/26/2008 9:57:00 AM
270801091	270801091-0007	BA-00032		10/26/2008 9:57:00 AM
270801091	270801091-0008	BA-00033 VA		10/26/2008 9:57:00 AM

LB RD VA

EMSL Analytical, Inc., 107 West 4th Street, Libby, MT 59923

Page 1 of 2

2708-EMR-97(R-T)/2708-EMR-99(A-L)

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:55:51 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270801091	270801091-0009 \ BA-00040	10/26/2008 9:57:00 AM
270801091	270801091-0010 \ BA-00041	10/26/2008 9:57:00 AM
270801091	270801091-0011 \ BA-00050	10/26/2008 9:57:00 AM
270801091	270801091-0012 \ BA-00051	10/26/2008 9:57:00 AM
270801091	270801091-0013 \ BA-00061	10/26/2008 9:57:00 AM
270801091	270801091-0014 BA-00062	10/26/2008 9:57:00 AM

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: TEM ISO 10312

Matrix: Air

TAT: 120 Hour

Qty: 14

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0001	BA-00003		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>SHV</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>R/Km</i>	Date:	11/13/08
Data Entry:	<i>Se</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0002	BA-00004		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	<i>11/12/08</i>
Preliminary Data Sent to Special Projects:	<i>Rick</i>	Date:	<i>11/13/08</i>
Data Entry:	<i>OL</i>	Date:	<i>11/14/08</i>
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	<i>12/2/08</i>
Reported to Client:	<i>KL</i>	Date:	<i>12/3/08</i>

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0003	BA-00013		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>MPJ</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/13/08
Data Entry:	<i>er</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0004	BA-00014		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RCM</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>RCM</i>	Date:	11/13/08
Data Entry:	<i>RC</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0005	BA-00023		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/13/08
Data Entry:	<i>RL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>RL</i>	Date:	12/2/08
Reported to Client:	<i>RL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0006	BA-00024		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RKM</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>RKM</i>	Date:	11/13/08
Data Entry:	<i>OL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0007	BA-00032		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RMP</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>R/Km</i>	Date:	11/13/08
Data Entry:	<i>De</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0008	BA-00033		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RMP</i>	Date:	11/12/08
Preliminary Data Sent to Special Projects:	<i>Rkm</i>	Date:	11/13/08
Data Entry:	<i>OL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM
EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0009	BA-00040		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RM</i>	Date:	11/13/08
Preliminary Data Sent to Special Projects:	<i>RM</i>	Date:	11/15/08
Data Entry:	<i>RM</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0010	BA-00041		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	11/13/08
Preliminary Data Sent to Special Projects:	<i>RKM</i>	Date:	11/13/08
Data Entry:	<i>LL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>LL</i>	Date:	12/2/08
Reported to Client:	<i>LL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0011	BA-00050		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>psj</i>	Date:	4/13/08
Preliminary Data Sent to Special Projects:	<i>R/K</i>	Date:	11/13/08
Data Entry:	<i>o</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMR178

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0012	BA-00051		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RLM</i>	Date:	11/13/08
Preliminary Data Sent to Special Projects:	<i>RLM</i>	Date:	11/13/08
Data Entry:	<i>RL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0013	BA-00061		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RMP</i>	Date:	11/13/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/13/08
Data Entry:	<i>sc</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14656
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801091

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0014	BA-00062		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RKM</i>	Date:	11/13/08
Preliminary Data Sent to Special Projects:	<i>RKM</i>	Date:	11/13/08
Data Entry:	<i>ee</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/2/08
Reported to Client:	<i>KL</i>	Date:	12/3/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00003
 QA Type Not QA
 Lab Sample Number 270801091-0001
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 933 L
 Sensitivity (amphibole) 8.14E-04 s/cc
 Sensitivity (chrysotile) 8.14E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00003_270801091-0001_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00003
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	933
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, R
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
14	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction: V

COMMENTS

BA-00003 270801091-0001 ISO 11-12-08 D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00004
 QA Type Not QA
 Lab Sample Number 270801091-0002
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 991 L
 Sensitivity (amphibole) 7.66E-04 s/cc
 Sensitivity (chrysotile) 7.66E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00004_270801091-0002_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00004
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	991
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, S
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
50	Maximum # of GOs
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00004 270801091-0002 ISO 11-12-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00004
270801091-0002

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00013
 QA Type Not QA
 Lab Sample Number 270801091-0003
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 977 L
 Sensitivity (amphibole) 7.77E-04 s/cc
 Sensitivity (chrysotile) 7.77E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00013_270801091-0003_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX II (49)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00013	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	977	
Date received by lab	10/21/2008	
Lab Job Number:	270801091	
Lab Sample Number:	270801091-0003	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/22/2008	
EPA COC Number	L14656	

Analyzed by	R. Pescador	
Analysis date	11/12/2008	
Prep	Direct	▼
If sample type = air, is there loose material or debris in the bowl?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-97, T	
Archive filter(s) storage location	Westmont	
F- factor	1	
QA Type	Not QA	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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	F-factor
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Grid opening traverse direction:	V
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COMMENTS

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BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00013_270801091-0003_ISO_11-12-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00013
270801091-0003

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by: L. Ramowski

Data Entry date: 11/14/2008

QA by: K. Lusher

QA date:	12/2/2008
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Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00014
 QA Type Not QA
 Lab Sample Number 270801091-0004
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 942 L
 Sensitivity (amphibole) 8.06E-04 s/cc
 Sensitivity (chrysotile) 8.06E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00014 270801091-0004 ISO 11-12-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00014
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	942
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, A
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
50	Maximum # of GOs
14	Maximum # of Structure
	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00014 270801091-0004 ISO 11-12-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00014
270801091-0004

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:

L. Ramowski

QA by: K. Lusher

Data Entry date:

11/14/2008

QA date:	12/2/2008
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Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00023
 QA Type Not QA
 Lab Sample Number 270801091-0005
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 960 L
 Sensitivity (amphibole) 7.91E-04 s/cc
 Sensitivity (chrysotile) 7.91E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00023_270801091-0005 ISO 11-12-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX II (49)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00023	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	960	
Date received by lab	10/21/2008	
Lab Job Number:	270801091	
Lab Sample Number:	270801091-0005	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/22/2008	
EPA COC Number	L14656	

Analyzed by	R. Pescador	
Analysis date	11/12/2008	
Prep	Direct	▼
if sample type = air, is there loose material or debris in the cowl?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-99, B	
Archive filter(s) storage location	Westmont	
F- factor	1	
QA Type	Not QA	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00023_270801091-0005_ISO_11-12-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00023
270801091-0005

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00024
 QA Type Not QA
 Lab Sample Number 270801091-0006
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 953 L
 Sensitivity (amphibole) 7.97E-04 s/cc
 Sensitivity (chrysotile) 7.97E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00024_270801091-0006 ISO 11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 KV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00024
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	953
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, C
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
50	Maximum # of GOs
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00024_270801091-0006_ISO_11-12-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00024
270801091-0006

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

K. Lusher
12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00032
 QA Type Not QA
 Lab Sample Number 270801091-0007
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 780 L
 Sensitivity (amphibole) 9.74E-04 s/cc
 Sensitivity (chrysotile) 9.74E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00032 270801091-0007 ISO 11-12-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00032
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, D
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00032 270801091-0007 ISO 11-12-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00032
270801091-0007

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00033
 QA Type Not QA
 Lab Sample Number 270801091-0008
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 658 L
 Sensitivity (amphibole) 1.15E-03 s/cc
 Sensitivity (chrysotile) 1.15E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00033_270801091-0008_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00033
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	658
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
19	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
19	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
(For dust and dustfall, enter 1.0)

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00033_270801091-0008_ISO_11-12-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00033
270801091-0008

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

K. Lusher
12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00040
 QA Type Not QA
 Lab Sample Number 270801091-0009
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 16
 Number of Grid Openings (chrysotile) 16
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 780 L
 Sensitivity (amphibole) 2.37E-03 s/cc
 Sensitivity (chrysotile) 2.37E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00040_270801091-0009_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00040
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
50	Maximum # of GOs
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00040 270801091-0009 ISO 11-13-08 D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00041
 QA Type Not QA
 Lab Sample Number 270801091-0010
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 18
 Number of Grid Openings (chrysotile) 18
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 718 L
 Sensitivity (amphibole) 2.29E-03 s/cc
 Sensitivity (chrysotile) 2.29E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00041 270801091-0010 ISO 11-13-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00041
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	718
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the count?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, G
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
18	GOs required to reach target sensitivity
50	Maximum # of GOs
18	Maximum # of Structure
	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00041_270801091-0010_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312
SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00050
 QA Type Not QA
 Lab Sample Number 270801091-0011
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 16
 Number of Grid Openings (chrysotile) 16
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 806 L
 Sensitivity (amphibole) 2.30E-03 s/cc
 Sensitivity (chrysotile) 2.30E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00050_270801091-0011_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX II (49)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00050	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	806	
Date received by lab	10/21/2008	
Lab Job Number:	270801091	
Lab Sample Number:	270801091-0011	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/22/2008	
EPA COC Number	L14656	

Analyzed by	R. Pescador	
Analysis date	11/13/2008	
Prep	Direct	▼
If sample type = air, is there loose material or debris in the bowl?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-99, H	
Archive filter(s) storage location	Westmont	
F- factor	1	
QA Type	Not QA	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:	V
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COMMENTS

BA-00050_270801091-0011_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00051
 QA Type Not QA
 Lab Sample Number 270801091-0012
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 17
 Number of Grid Openings (chrysotile) 17
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 791 L
 Sensitivity (amphibole) 2.20E-03 s/cc
 Sensitivity (chrysotile) 2.20E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00051_270801091-0012_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00051
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	791
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, I
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00051_270801091-0012_ISO_11-13-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00051
270801091-0012

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/14/2008

QA by:	K. Lusher
QA date:	11/2/2008

K. Lusher
11/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00061
 QA Type Not QA
 Lab Sample Number 270801091-0013
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 20
 Number of Grid Openings (chrysotile) 20
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 630 L
 Sensitivity (amphibole) 2.35E-03 s/cc
 Sensitivity (chrysotile) 2.35E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00061_270801091-0013_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00061
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	630
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, J
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
20	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
20	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
(For dust and dustfall, enter 1.0)

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction: V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00061 270801091-0013 ISO 11-13-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00061
270801091-0013

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/14/2008

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00062
 QA Type Not QA
 Lab Sample Number 270801091-0014
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 21
 Number of Grid Openings (chrysotile) 21
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 602 L
 Sensitivity (amphibole) 2.34E-03 s/cc
 Sensitivity (chrysotile) 2.34E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00062_270801091-0014_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00062
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	602
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the count?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, K
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
21	GOs required to reach target sensitivity
50	Maximum # of GOs
21	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00062_270801091-0014_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312**

SAMPLE ID

Status Analyzed
EPA Sample Number 0
QA Type LB
Lab Sample Number 270801091
Sample Type Air
Category Blank
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 10
Number of Grid Openings (chrysotile) 10
Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 0 L
Sensitivity (amphibole) Blank s/cc
Sensitivity (chrysotile) Blank s/cc

**Recording
Rules:**

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

**Stopping
Rules:**

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 270801091 ISO 11-13-08 DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801091
Lab Sample Number:	270801091
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the count?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, L
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

_270801091_ISO_11-13-08_DLB.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/2/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00033
 QA Type VA
 Lab Sample Number 270801091-0008
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 658 L
 Sensitivity (amphibole) 1.15E-03 s/cc
 Sensitivity (chrysotile) 1.15E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00033_270801091-0008_ISO_12-01-08_DVA.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX II (27-2)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00033	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	658	
Date received by lab	10/21/2008	
Lab Job Number:	270801091	
Lab Sample Number:	270801091-0008	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/22/2008	
EPA COC Number	L14656	

Analyzed by	E. Wyatt-Pescador	
Analysis date	12/1/2008	
Prep	Direct	▼
if sample type = air, is there loose material or debris in the count?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-99, E	
Archive filter(s) storage location	Westmont	
F- factor	1	
QA Type	Verified Analysis	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
19	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
19	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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F-factor

Grid opening traverse direction:	V
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COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00033 270801091-0008 ISO_12-01-08_DVA.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00033
270801091-0008

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	VA

ERROR CHECK

OK - No errors found

Data Entry by: L. Ramowski

Data Entry date: 12/2/2008

QA by: K. Lusher

QA date: 12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00040
 QA Type RD
 Lab Sample Number 270801091-0009
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 13
 Number of Grid Openings (chrysotile) 13
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 780 L
 Sensitivity (amphibole) 2.92E-03 s/cc
 Sensitivity (chrysotile) 2.92E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00040 270801091-0009 ISO 01-30-09 DRD.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-02)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00040
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Mahoney
Analysis date	1/30/2009
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Recount Different

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

Grid 1 openings J7 and H10 plus Grid 2 opening F3 - blown

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00040_270801091-0009_ISO_01-30-09_DRD.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00040
270801091-0009

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	RD

ERROR CHECK

OK - No errors found

Data Entry by:

L. Ramowski

QA by: K. Lusher

Data Entry date:

1/30/2009

QA date:	2/3/2009
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[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00003
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	933
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, R
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one):

none 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:Target Sensitivity: 11/21/08 0.0024
~~0.0004~~Max # of GOs: 14 ~~25~~

Target # of Structures: 50

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
4	I9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-97, R

[illegible]

2708-EMR-97, R

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00004
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	991
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, S
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>(≥ 3:1)</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>AMP 0.0024</u> <u>11/12/08 0.0004</u>
Max # of GOs:	<u>13</u> 100
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-97, S

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00004	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0002	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-97, S

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	E2	ND														
	E4	ND														
	E6	ND														
	E8	ND														

PMO 11/12/11

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00013
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	977
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, T
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 1/1000 0.0024 0.0004

Max # of GOs: 13 99

Target # of Structures: 50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	J5	ND														
	I7	ND														
→	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

⓪ Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-97, T

[illegible]

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00013	QA TYPE	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0003	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-97, T

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00014
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	942
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0004
Number of grids prepared	5
Prepared by	K. Barnee
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

<u>Recording Rules:</u>		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

<u>Stopping Rules:</u>	
Target Sensitivity:	per 0.0024 1/22/07 - 0.0001
Max # of GOs:	14 - 33
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

☒ VerticalAre prepped grids acceptable for analysis? (circle one) ☒ Yes ☐ No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00014	QA TYPE	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0004	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-99, A

[illegible]

2708-EMR-99, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I6	ND														
	I8	ND														
	I10	ND														
	H7	ND														
	H9	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
→	E10	ND														
<i>Rafy 4/12/08</i>																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00023
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	960
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right-->

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>2.3</u> $\geq 5:1$
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>0.0024</u> 0.0001
Max # of GOs:	<u>13</u> 30
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
→	F10	ND														

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)	
First resuspension volume or rinse volume (mL)	
Volume applied to secondary filter (mL) or used for serial dilution	

Inputs for Serial Dilutions

Second resuspension volume (mL)	
Volume applied to secondary filter (mL) or used for serial dilution	
Third resuspension volume (mL)	
Volume applied to secondary filter (mL)	

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing	
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME

EMSL27

EPA SAMPLE NO.

BA-00023

QA TYPE

LAB JOB NUMBER

270801091

LAB SAMPLE NO.

270801091-0005

SAMPLE TYPE

A


Not QA

GRID STORAGE LOC.

2708-EMR-99, B

[illegible]

2708-EMR-99, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
1	J3	NO														
	J5	NO														
	J7	ND														
	J9	ND														
	I2	NO														
	I4	ND														
	I6	NO														
	I8	NO														
	I10	NO														
	H1	ND														
	H3	ND														
	H5	NO														
→	H7	ND														
																

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00024
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	953
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	114656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	11/22/08 0.0024
Max # of GOs:	13
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
 V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

[illegible]

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
4	H7	ND														
<p><i>2007/11/2/02</i></p>																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00032
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	100% 0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) ☒ Yes ☐ No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME

EMSL27

EPA SAMPLE NO.

BA-00032

QA TYPE

LAB JOB NUMBER

270801091

LAB SAMPLE NO.

270801091-0007

SAMPLE TYPE

A

Not QA

GRID STORAGE LOC.

2708-EMR-99, D

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														

RAJ 4/17/08

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00033
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	658
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right-->

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
Minimum Length (um): 0.5	
Minimum Width (um): None	

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	19
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
2	J4	ND														
3	J6	ND														
4	J8	ND														
5	J10	ND														
6	H2	ND														
7	H4	ND														
8	H6	ND														
9	H8	ND														
10	A10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)	
First resuspension volume or rinsate volume (mL)	
Volume applied to secondary filter (mL) or used for serial dilution	

Inputs for Serial Dilutions

Second resuspension volume (mL)	
Volume applied to secondary filter (mL) or used for serial dilution	
Third resuspension volume (mL)	
Volume applied to secondary filter (mL)	

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing	
--	--

2708-EMR-99, E

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00040
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 16

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
1	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
→	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for Indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

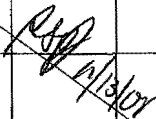
Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	ND														
↓	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E8	ND														
																

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00041
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	718
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right-->

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>(≥ 3:1)</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

F-factor Calculation:

Indirect Prep Inputs

<input type="text"/>	Fraction of primary filter used for Indirect prep or ashing [For dust and dustfall, enter 1.0]
<input type="text"/>	First resuspension volume or rinse volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

<input type="text"/>	Second resuspension volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL) or used for serial dilution
<input type="text"/>	Third resuspension volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

<input type="text"/>	Fraction of secondary filter used for ashing
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Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	C2	ND														
	C4	ND														
	C6	ND														
	C8	ND														
-7	C10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

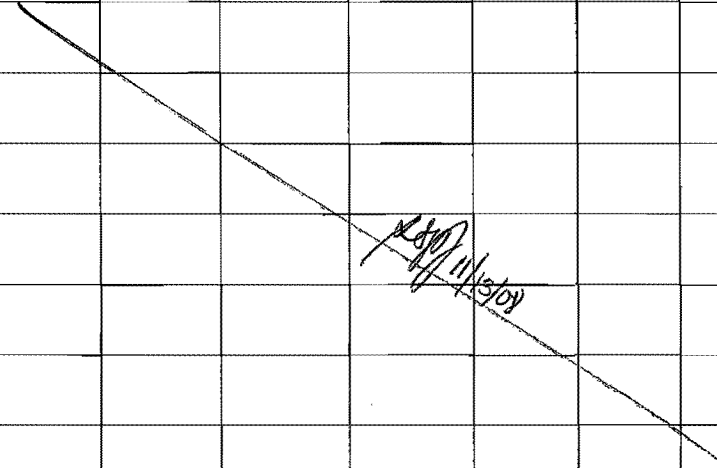
Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-99, G

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	ND														
1	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E6	ND														
	E8	ND														
	E10	ND														
																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00050
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	806
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

<u>Recording Rules:</u>	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
✓	G9	ND														

F-factor Calculation:

<u>Indirect Prep Inputs</u>	
	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

<u>Inputs for Serial Dilutions</u>	
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

<u>Input for Ashing of Secondary Filter</u>	
	Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

2708-EMR-99, H

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00051
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	791
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 16

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
→	D10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing <i>[For dust and dustfall, enter 1.0]</i>
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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2708-EMR-99, 1

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	G4	ND														
	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
4	G2	ND														

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	366
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00061
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	630
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

<u>Recording Rules:</u>	
Minimum Aspect Ratio (circle one):	none <u>3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	20
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
→	G10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-99, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
RSP 4/15/08																

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00062
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	6 202
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/3/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

<u>Recording Rules:</u>	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	21
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	NO														
	I4	NO														
	I6	NO														
	I8	NO														
	I10	NO														
	G2	NO														
	G4	NO														
	G6	NO														
	G8	NO														
	G10	NO														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No

If No, explain:

2708-EMR-99. K

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
4	E1	ND														

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

LB

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	
Date received by lab	
Lab Job Number:	270801091
Lab Sample Number:	270801091
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, L
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate calls provided to the right---->

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
2	I1	ND														
	I3	NO														
	I5	NO														
	I7	NO														
	I9	NO														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) **Yes** No

If No, explain:

**BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count**

Page 1 of 3

VIA

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	388
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00033
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	658
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number:	L J4656
Secondary filter pore size (um)	0.2

Analyzed by	E. Wyatt-Pescador
Analysis date	12/1/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99: E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Verified Analysis

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

EMSL27

BA-00033

LAB JOB NUMBER

270801091

270801091-0008

A

GRID STORAGE LOC.

2708-EMR-99, E

[illegible]

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00033	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0008	SAMPLE TYPE	A	Verified Analysis		GRID STORAGE LOC.	2708-EMR-99, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														

270801091 12/1/09

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

(RD)

Page 1 of 2

Laboratory name:	EMSL27
Instrument	JEOL 100 CX-H (200) <i>21309</i>
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

53648
Alca
21309

EPA Sample Number:	BA-00040
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	1/30/09
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Different

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right-->

<u>Recording Rules:</u>	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	NA														
	J3	NA														
	J5	NA														
	J7	Grid	b/b/w/v													
	J9	NA														
	H2	NA														
	H4	NA														
	H6	NA														
	H8	NA														
	H10	Grid	b/b/w/v													

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-99, F

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	NP														
↓	F3	Grid blown														
	F5	ND														
	F7	ND														
	F9	ND														
	E8	ND														
R/cm 1/30/09																

Chain of Custody Record

From: CDM

60 Port Blvd, Ste. 200

Libby, MT 59923

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
1595 Wynkoop Street
Denver, CO 80202-1129

Send to: EMSL-Mobile Lab

107 W 4th St

Libby, MT 59923

No. L14656

via: ☒ hand delivery ☐ shipped

Date Shipped: 10/21/2008

Carrier Name: Hand-delivered

Airbill: NA

270801091

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm2)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	BA-00003		9/17/2008	A	~ 933 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00004		9/17/2008	A	~ 991 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00013		9/18/2008	A	~ 977 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00014		9/18/2008	A	~ 942 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00023		9/19/2008	A	~ 960 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00024		9/19/2008	A	~ 953 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00032		9/22/2008	A	~ 780 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00033		9/22/2008	A	~ 658 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00040		9/23/2008	A	~ 780 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00041		9/23/2008	A	~ 718 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00050		9/24/2008	A	~ 806 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00051		9/24/2008	A	~ 791 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00061		9/25/2008	A	~ 630 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00062		9/25/2008	A	602 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	<input checked="" type="checkbox"/>

Total Number of Samples 14

END OF SUBMITTAL

Additional Comments:

Please see attachment ~ Thank you!

Relinquished by (Signature and Company) *J. Kai CDM* 10-21-08 0957Relinquished by (Signature and Company) *Elizabeth J. Wyatt-Landis/EMSL* 1/5/09/1505

Relinquished by (Signature and Company)

March 24, 2005 Rev 3

Received by (Signature and Company) *R.K. Mahoney EMSL* 10/21/08 0957Received by (Signature and Company) *L. Ramon/EMSL* 1/27/09 9:09

Received by (Signature and Company)

Sample Condition upon Receipt

Sample Condition upon Receipt

Sample Condition upon Receipt

Page 1 of 1

JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET
LIBBY MT 59923

35 LBS

1 OF 1

SHIP TO:

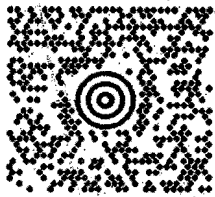
CHARLES LACERRA

856-858-4800 253

EMSL ANALYTICAL, INC.

107 HADDON AVENUE

WESTMONT NJ 08108-2711

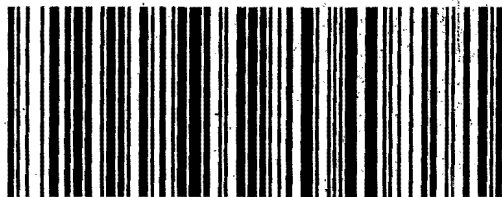


NJ 081 9-06



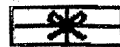
UPS GROUND

TRACKING #: 1Z Y84 048 03 9892 8735

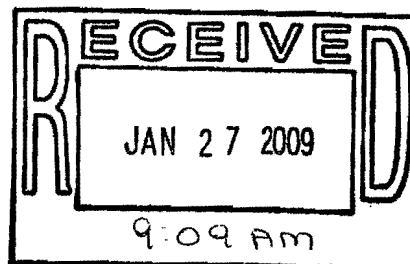


BILLING: P/P

UIS 11.0.17. WXPFE70 84.0A 10/2008



TM



EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800

Fax: (856) 858-9551



LETTER OF TRANSMITTAL

To: <u>Scott Carney</u> <u>EMR, Inc.</u> <u>11 East Superior Street</u> <u>Suite 260</u> <u>Duluth, MN 55802</u> <u>Phone: 763-277-5200</u>	Date: <u>February 9, 2009</u> From: <u>Charles E. LaCerra</u> Re: <u>Libby, MT BNSF Work</u> <u>Mobile Lab Analytical Reports</u> <u>See Below</u>
--	--

We are sending you:	× Attached	Under separate cover via
<input type="checkbox"/> Solicitation	<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Invoice #'s See Below
<input type="checkbox"/> Subcontract	<input type="checkbox"/> As noted	<input type="checkbox"/> Other
<input type="checkbox"/> Laboratory Samples	<input checked="" type="checkbox"/> Analytical Reports	

These are transmitted as indicated below:

<input type="checkbox"/> Execute ___ Original(s)	<input type="checkbox"/> Review & Comment	<input type="checkbox"/> For Approval
<input type="checkbox"/> Return ___ Original(s)	<input type="checkbox"/> As Requested	<input type="checkbox"/> Respond as instructed
<input checked="" type="checkbox"/> For Your Information/File		<input type="checkbox"/> Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801090

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:21:45 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: TEM ISO 10312 Matrix Air TAT: 120 Hour Qty: 8

Acct Sts: Slsprsn: epodell

Logged: rmahoney Date: 10/21/2008

Inter-Lab Sample Transfer

Samples Relinquished: _____ Date: _____

Samples Received: _____ Date: _____

Package Mailed to Westmont: _____ Date: _____

Method of Delivery: _____

Includes: (Circle)

Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Sample ☒ Acceptable
Condition: ☐ Unacceptable

Comments

Initial Prep (Initials/Lab): KB Date: 10/21/08

Filter Prep (Initials/Lab): _____ Date: _____

Grid Prep (Initials/Lab): KB Date: 10/21/08

For Special Projects Use Only:

QC Selection: _____ Date: _____

Date Package Review: KL Date: 2/4/09

Date Package Mailed: KL Date: 2/29/09

Special Instructions

Pre hardcopy review 2-4-09 by KL

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0001 J	BA-00005 RS		10/26/2008 9:57:00 AM
270801090	270801090-0002 J	BA-00015		10/26/2008 9:57:00 AM
270801090	270801090-0003 K	BA-00025		10/26/2008 9:57:00 AM
270801090	270801090-0004 L	BA-00031		10/26/2008 9:57:00 AM
270801090	270801090-0005 M	BA-00039		10/26/2008 9:57:00 AM
270801090	270801090-0006 N	BA-00049		10/26/2008 9:57:00 AM
270801090	270801090-0007 O	BA-00060		10/26/2008 9:57:00 AM
270801090	270801090-0008 P	BA-00069		10/26/2008 9:57:00 AM

RS

EMSL Analytical, Inc., 107 West 4th Street, Libby, MT 59923

2708-EMR-97(I-Q)

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:15 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Test: TEM ISO 10312

Matrix: Air

TAT: 120 Hour

Qty: 8

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0001	BA-00005		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	11/6/08
Data Entry:	<i>OL</i>	Date:	11/14/08
Structure Review:	<i>KE</i>	Date:	12/1/08
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0002	BA-00015		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSJ</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/6/08
Data Entry:	<i>eu</i>	Date:	11/4/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0003	BA-00025		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>[Signature]</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>R/Km</i>	Date:	11/6/08
Data Entry:	<i>Oz</i>	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/11/08
Reported to Client:	<i>KL</i>	Date:	12/11/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0004	BA-00031		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/6/08
Data Entry:	<i>ee</i>	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMR178

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0005	BA-00039		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>R/Km</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>R/Km</i>	Date:	11/6/08
Data Entry:	<i>su</i>	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:		Date:	

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMR178

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0006	BA-00049		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSB</i>	Date:	11/4/08
Preliminary Data Sent to Special Projects:	<i>R/KM</i>	Date:	11/6/08
Data Entry:	<i>DL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0007	BA-00060		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSJ</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>R/cm</i>	Date:	11/6/08
Data Entry:	<i>oe</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14655

Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78

Customer PO:

Received: 10/21/08 9:57 AM

EMSL Order: 270801090

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0008	BA-00069		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	<i>RSP</i>	Date:	11/6/08
Preliminary Data Sent to Special Projects:	<i>Rkm</i>	Date:	11/6/08
Data Entry:	<i>OL</i>	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	<i>KL</i>	Date:	12/1/08
Reported to Client:	<i>KL</i>	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00005
 QA Type Not QA
 Lab Sample Number 270801090-0001
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 29
 Number of Grid Openings (chrysotile) 29
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 1028 L
 Sensitivity (amphibole) 9.93E-04 s/cc
 Sensitivity (chrysotile) 9.93E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	29	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00005-270801090-0001-ISO-11-06-08-D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00005
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1028
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the container?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
50	Maximum # of GOs
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00005_270801090-0001_ISO_11-06-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00005
270801090-0001

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/11/2008

QA by:	K. Lusher
QA date:	12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
EPA Sample Number BA-00015
QA Type Not QA
Lab Sample Number 270801090-0002
Sample Type Air
Category Field
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 32
Number of Grid Openings (chrysotile) 32
Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 938 L
Sensitivity (amphibole) 9.87E-04 s/cc
Sensitivity (chrysotile) 9.87E-04 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	32	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00015_270801090-0002_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00015
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	938
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, J
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
50	Maximum # of GOs
14	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
	F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00015_270801090-0002 ISO 11-06-08 D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/1/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00025
 QA Type Not QA
 Lab Sample Number 270801090-0003
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 31
 Number of Grid Openings (chrysotile) 31
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 988 L
 Sensitivity (amphibole) 9.67E-04 s/cc
 Sensitivity (chrysotile) 9.67E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	13	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00025_270801090-0003_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX (30)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00025	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	988	
Date received by lab	10/21/2008	
Lab Job Number:	270801090	
Lab Sample Number:	270801090-0003	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/21/2008	
EPA COC Number	L14655	

Analyzed by	R. Pescador	
Analysis date	11/6/2008	
Prep	Direct	▼
If sample type = air, is there loose material or debris in the bowl?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-97, K	
Archive filter(s) storage location	Westmont	
[REDACTED]		
F- factor	1	
QA Type	Not QA	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
13	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[REDACTED] Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

[REDACTED] First resuspension volume or rinsate volume (mL)

[REDACTED] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[REDACTED] Second resuspension volume (mL)

[REDACTED] Volume applied to secondary filter (mL) or used for serial dilution

[REDACTED] Third resuspension volume (mL)

[REDACTED] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[REDACTED] Fraction of secondary filter used for ashing

[REDACTED] F-factor

Grid opening traverse direction:	V
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COMMENTS

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BA-00025 270801090-0003 ISO 11-06-08 D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/1/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
EPA Sample Number BA-00031
QA Type Not QA
Lab Sample Number 270801090-0004
Sample Type Air
Category Field
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 39
Number of Grid Openings (chrysotile) 39
Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 779 L
Sensitivity (amphibole) 9.75E-04 s/cc
Sensitivity (chrysotile) 9.75E-04 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00031_270801090-0004_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00031
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	779
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, L
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
50	Maximum # of GOs
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00031 270801090-0004 ISO 11-06-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00031
270801090-0004

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/11/2008

QA by:	K. Lusher
QA date:	12/1/2008

K. Lusher
12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00039
 QA Type Not QA
 Lab Sample Number 270801090-0005
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 37
 Number of Grid Openings (chrysotile) 37
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 817 L
 Sensitivity (amphibole) 9.80E-04 s/cc
 Sensitivity (chrysotile) 9.80E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00039_270801090-0005_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00039
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	817
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, M
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
50	Maximum # of GOs
16	Maximum # of Structure
	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00039_270801090-0005_ISO_11-06-08_D.xls

Direct
Not QA

OK - No errors found

12/1/2008

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00049
 QA Type Not QA
 Lab Sample Number 270801090-0006
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 37
 Number of Grid Openings (chrysotile) 37
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 803 L
 Sensitivity (amphibole) 9.97E-04 s/cc
 Sensitivity (chrysotile) 9.97E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00049 270801090-0006 ISO 11-06-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00049
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	803
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, N
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
	F-factor

Grid opening traverse direction:	V
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COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00049 270801090-0006 ISO 11-06-08 D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00049
270801090-0006

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/11/2008

QA by:	K. Lusher
QA date:	12/1/2008

QA date: 12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00060
 QA Type Not QA
 Lab Sample Number 270801090-0007
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 608 L
 Sensitivity (amphibole) 1.25E-03 s/cc
 Sensitivity (chrysotile) 1.25E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00060_270801090-0007_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00060
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	608
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the crowd?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, O
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
21	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
21	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00060_270801090-0007_ISO_11-06-08_D.xls

OK - No errors found

QA by:	K. Lusher
QA date:	12/1/2008

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312
SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00069
 QA Type Not QA
 Lab Sample Number 270801090-0008
 Sample Type Air
 Category Blank
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 8
 Number of Grid Openings (chrysotile) 8
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 0 L
 Sensitivity (amphibole) Blank s/cc
 Sensitivity (chrysotile) Blank s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
	8	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		≥ 5
C = Chrysotile	c		>.5	≥ 5
	d	≥.5 to < 5	≤.5	≥ 5
	e	5 to 10	≤.5	≥ 5
	f	>10	≤.5	≥ 5

PCME: Length > 5 um, Width ≥ 0.25 um, Aspect Ratio ≥ 3:1

FILE NAME: BA-00069 270801090-0008 ISO 11-06-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00069
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, P
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00069 270801090-0008 ISO 11-06-08 D.xls

Not QA

OK - No errors found

12/1/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00005
 QA Type RS
 Lab Sample Number 270801090-0001
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 13
 Number of Grid Openings (chrysotile) 13
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1028 L
 Sensitivity (amphibole) 2.22E-03 s/cc
 Sensitivity (chrysotile) 2.22E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00005_270801090-0001_ISO_12-01-08_DRS.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00005
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1028
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Recount Same

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
50	Maximum # of GOs
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00005_270801090-0001_ISO_12-01-08_DRS.xls

Prep	Direct
QA Type	RS

OK - No errors found

QA by:	K. Lusher
QA date:	12/3/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00005
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1028
Date received by lab	10/21/08
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/08
EPA COC Number:	L14655
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/6/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>0.0004</u>
Max # of GOs:	<u>20</u>
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
 (V) Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

2708-EMR-97.1

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME

EMSL27

EPA SAMPLE NO.

BA-00005

QA TYPE

LAB JOB NUMBER

270801090

LAB SAMPLE NO.

270801090-0001

SAMPLE TYPE

A

Not QA

GRID STORAGE LOC.

2708-EMR-97, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	C3	ND														
↓	C5	ND														
	C7	ND														
	C9	ND														
<div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border-left: 2px solid black; border-bottom: 2px solid black;"></div> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%) rotate(-45deg); font-size: 2em; font-family: cursive;"> RSG 11/6/08 </div> </div>																

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00015
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	938
Date received by lab	10/21/08
Lab Job Number:	270801090
Lab Sample Number:	270801090-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/08
EPA COC Number:	L14655
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/6/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity:

0.0024
0.0001

Max # of GOs:

32-14

Target # of Structures:

50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

2708-EMR-97, J

[illegible]

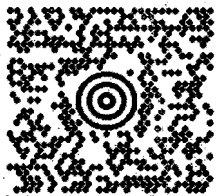
JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET
LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:

CHARLES LACERRA
856-858-4800 1253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

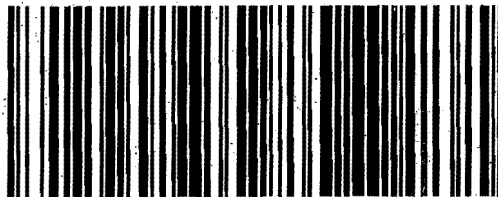


NJ 081 9-06

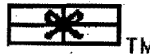


UPS GROUND

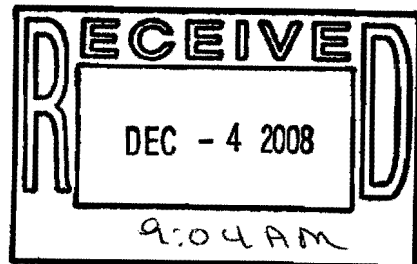
TRACKING #: 1Z Y84 048 03 9389 9115



BILLING: P/P



EMSL
107 HAD
HADDON T
P: PIN
72A
1Z Y84 048 03
157 858 4800 1253
107 HAD



EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800

Fax: (856) 858-9551

EMSL

SM

LETTER OF TRANSMITTAL

To:	Scott Carney	Date:	December 15, 2008
	EMR, Inc.	From:	Charles E. LaCerra
	11 East Superior Street	Re:	Libby, MT BNSF Work
	Suite 260		Mobile Lab Analytical Reports
	Duluth, MN 55802		See Below
	Phone: 763-277-5200		

We are sending you: **× Attached** **Under separate cover via**

<input type="checkbox"/> Solicitation	<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Invoice #'s See Below
<input type="checkbox"/> Subcontract	<input type="checkbox"/> As noted	<input type="checkbox"/> Other
<input type="checkbox"/> Laboratory Samples	<input checked="" type="checkbox"/> Analytical Reports	

These are transmitted as indicated below:

<input type="checkbox"/> Execute ___ Original(s)	<input type="checkbox"/> Review & Comment	<input type="checkbox"/> For Approval
<input type="checkbox"/> Return ___ Original(s)	<input type="checkbox"/> As Requested	<input type="checkbox"/> Respond as instructed
<input checked="" type="checkbox"/> For Your Information/File		<input type="checkbox"/> Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801085

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:34:37 PM

Order ID: 270801085

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14650
Samples collected 9/17, 18, 19, 23/2008

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

EMSL Order: 270801085
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

Test: TEM ISO 10312 **Matrix:** Air **TAT:** 3 weeks **Qty:** 16

Acct Sts: **Slspnsn:** epodell **Logged:** jwyattpescador **Date:** 10/20/2008

BillingFrequency: With Report

Sample Condition: ☒ Acceptable
☐ Unacceptable

Comments

- ☐ Exempt from prep charge
☐ Exempt from lab opening fee
☐ Exempt from layer/aliquot charges

Prepped: KB **Date:** 10/20/08
Analyzed: RK **Date:** 10/31/08
Data Entry: A **Date:** 11/3/08
Screened: TP **Date:** 11/4/08
Mailed: Q **Date:** 12/15/08

Special Instructions Prehardcopy review C/12/14/08

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801085	270801085-0001	BA-00006 •		11/10/2008 12:21:00 P
270801085	270801085-0002	BA-00007 •		11/10/2008 12:21:00 P
270801085	270801085-0003	BA-00008 •		11/10/2008 12:21:00 P
270801085	270801085-0004	BA-00009 •		11/10/2008 12:21:00 P
270801085	270801085-0005	BA-00010 •		11/10/2008 12:21:00 P
270801085	270801085-0006	BA-00016 •		11/10/2008 12:21:00 P
270801085	270801085-0007	BA-00017 •		11/10/2008 12:21:00 P
270801085	270801085-0008	BA-00018 •		11/10/2008 12:21:00 P
270801085	270801085-0009	BA-00019 •		11/10/2008 12:21:00 P
270801085	270801085-0010	BA-00020 •		11/10/2008 12:21:00 P
270801085	270801085-0011	BA-00026 • RS		11/10/2008 12:21:00 P

RS LB

EMSL Analytical, Inc., 107 West 4th Street, Libby, MT 59923

Page 1 of 2

2708-EmR-96(m-T) / 2708-EmR-97(A-H)

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:34:37 PM

Order ID: 270801085

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: L14650
Samples collected 9/17, 18, 19, 23/2008

EMSL Order: 270801085
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

270801085	270801085-0012	BA-00027 •		11/10/2008 12:21:00 P
270801085	270801085-0013	BA-00028 •		11/10/2008 12:21:00 P
270801085	270801085-0014	BA-00034 •		11/10/2008 12:21:00 P
270801085	270801085-0015	BA-00035 •		11/10/2008 12:21:00 P
270801085	270801085-0016	BA-00036	Archive	11/10/2008 12:21:00 P

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312
SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00006
 QA Type Not QA
 Lab Sample Number 270801085-0001
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 7
 Number of Grid Openings (chrysotile) 7
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1778 L
 Sensitivity (amphibole) 2.38E-03 s/cc
 Sensitivity (chrysotile) 2.38E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00006 270801085-0001 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00006
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1778
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the count?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, M
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity GOs required to reach target sensitivity
50	Maximum # of GOs
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00006_270801085-0001_ISO_10-31-08_D.xls

OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00007
 QA Type Not QA
 Lab Sample Number 270801085-0002
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 7
 Number of Grid Openings (chrysotile) 7
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 1763 L
 Sensitivity (amphibole) 2.40E-03 s/cc
 Sensitivity (chrysotile) 2.40E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00007 270801085-0002 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 KV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00007
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1763
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, N
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
	F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00007_270801085-0002_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00008
 QA Type Not QA
 Lab Sample Number 270801085-0003
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 6
 Number of Grid Openings (chrysotile) 6
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 2440 L
 Sensitivity (amphibole) 2.02E-03 s/cc
 Sensitivity (chrysotile) 2.02E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00008_270801085-0003 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00008
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2440
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, O
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
6	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
6	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00008_270801085-0003_ISO_10-31-08_D.xls

BA-00008
270801085-0003

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:	L. Ramowski
Data Entry date:	11/3/2008

QA by:	T .Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00009
 QA Type Not QA
 Lab Sample Number 270801085-0004
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 6
 Number of Grid Openings (chrysotile) 6
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 2402 L
 Sensitivity (amphibole) 2.05E-03 s/cc
 Sensitivity (chrysotile) 2.05E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00009_270801085-0004_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00009
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2402.0
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, P
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
6	GOs required to reach target sensitivity
50	Maximum # of GOs
6	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00009_270801085-0004_ISO_10-31-08_D.xls

BA-00009
270801085-0004

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

L. Ramowski
11/3/2008

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00010
 QA Type Not QA
 Lab Sample Number 270801085-0005
 Sample Type Air
 Category Blank
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 10
 Number of Grid Openings (chrysotile) 10
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 0 L
 Sensitivity (amphibole) Blank s/cc
 Sensitivity (chrysotile) Blank s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		≥ 5
C = Chrysotile	c		>.5	≥ 5
	d	≥.5 to < 5	≤.5	≥ 5
	e	5 to 10	≤.5	≥ 5
	f	>10	≤.5	≥ 5

PCME: Length > 5 um, Width ≥ 0.25 um, Aspect Ratio ≥ 3:1

FILE NAME: BA-00010 270801085-0005 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00010
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, Q
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00010_270801085-0005_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
EPA Sample Number BA-00016
QA Type Not QA
Lab Sample Number 270801085-0006
Sample Type Air
Category Field
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 5
Number of Grid Openings (chrysotile) 5
Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 2675 L
Sensitivity (amphibole) 2.21E-03 s/cc
Sensitivity (chrysotile) 2.21E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00016 270801085-0006 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1,000
Scale: 1D =	1,000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00016
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2675
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, R
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00016_270801085-0006_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00017
 QA Type Not QA
 Lab Sample Number 270801085-0007
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 5
 Number of Grid Openings (chrysotile) 5
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 2675 L
 Sensitivity (amphibole) 2.21E-03 s/cc
 Sensitivity (chrysotile) 2.21E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00017_270801085-0007_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00017
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2675.0
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
if sample type -- air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, S
Archive filter(s) storage location	Westmont
F-factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00017_270801085-0007_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00018
 QA Type Not QA
 Lab Sample Number 270801085-0008
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 5
 Number of Grid Openings (chrysotile) 5
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 2538 L
 Sensitivity (amphibole) 2.33E-03 s/cc
 Sensitivity (chrysotile) 2.33E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00018_270801085-0008_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00018
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2538
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, T
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00018_270801085-0008_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00019
 QA Type Not QA
 Lab Sample Number 270801085-0009
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 5
 Number of Grid Openings (chrysotile) 5
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 2523 L
 Sensitivity (amphibole) 2.35E-03 s/cc
 Sensitivity (chrysotile) 2.35E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00019_270801085-0009_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00019
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2523
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, A
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00019_270801085-0009_ISO_10-31-08_D.xls

Prep	Direct
QA Type	Not QA

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00020
 QA Type Not QA
 Lab Sample Number 270801085-0010
 Sample Type Air
 Category Blank
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 10
 Number of Grid Openings (chrysotile) 10
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 0 L
 Sensitivity (amphibole) Blank s/cc
 Sensitivity (chrysotile) Blank s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00020 270801085-0010 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00020
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, B
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00020_270801085-0010_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00026
 QA Type Not QA
 Lab Sample Number 270801085-0011
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 7
 Number of Grid Openings (chrysotile) 7
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 1961 L
 Sensitivity (amphibole) 2.16E-03 s/cc
 Sensitivity (chrysotile) 2.16E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00026 270801085-0011 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00026
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1961
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, C
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00026_270801085-0011_ISO_10-31-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00026
270801085-0011

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by: L. Ramowski

Data Entry date:	11/3/2008
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QA by: T. Peters

QA date:	11/4/2008
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Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00027
 QA Type Not QA
 Lab Sample Number 270801085-0012
 Sample Type Air
 Category Blank
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 10
 Number of Grid Openings (chrysotile) 10
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 0 L
 Sensitivity (amphibole) Blank s/cc
 Sensitivity (chrysotile) Blank s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00027-270801085-0012 ISO-10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00027
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, D
Archive filter(s) storage location	Westmont
EPA Method used for sample analysis and detection limit	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00027_270801085-0012_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T.Peters
QA date:	11/4/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00028
 QA Type Not QA
 Lab Sample Number 270801085-0013
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 7
 Number of Grid Openings (chrysotile) 7
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1968 L
 Sensitivity (amphibole) 2.15E-03 s/cc
 Sensitivity (chrysotile) 2.15E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00028 270801085-0013 ISO 10-31-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00028
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1968
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, E
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1
0.50
none

Minimum Aspect Ratio
Minimum Length (um)
Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
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COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00034
 QA Type Not QA
 Lab Sample Number 270801085-0014
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm²
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 8
 Number of Grid Openings (chrysotile) 8
 Grid opening area 0.0130 mm²
 Volume (L) or Area (cm²) 1718 L
 Sensitivity (amphibole) 2.15E-03 s/cc
 Sensitivity (chrysotile) 2.15E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00034_270801085-0014_ISO-10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00034
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, F
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
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COMMENTS

BA-00034_270801085-0014_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00035
 QA Type Not QA
 Lab Sample Number 270801085-0015
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 8
 Number of Grid Openings (chrysotile) 8
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1718 L
 Sensitivity (amphibole) 2.15E-03 s/cc
 Sensitivity (chrysotile) 2.15E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00035_270801085-0015_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00035
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, G
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GUs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00035_270801085-0015 ISO_10-31-08 D.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00026
 QA Type RS
 Lab Sample Number 270801085-0011
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 7
 Number of Grid Openings (chrysotile) 7
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1961 L
 Sensitivity (amphibole) 2.16E-03 s/cc
 Sensitivity (chrysotile) 2.16E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00026_270801085-0011_ISO_11-03-08_DRS.xls

FILE TYPE: Original ▼

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field ▼
Filter Status	Analyzed ▼

EPA Sample Number:	BA-00026
Sample Type	Air ▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1961
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	11/3/2008
Prep	Direct ▼
If sample type = air, is there loose material or debris in the container?	No ▼
Counting rules	ISO (Air or Dust) ▼
Grid storage location	2708-EMR-97, C
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Recount Same ▼

Recording Rules:

≥ 3:1 ▼	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00026_270801085-0011_ISO_11-03-08_DRS.xls

ERROR CHECK
OK - No errors found

QA by:	T. Peters
QA date:	11/4/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number 0
 QA Type LB
 Lab Sample Number 270801085
 Sample Type Air
 Category Blank
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 10
 Number of Grid Openings (chrysotile) 10
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 0 L
 Sensitivity (amphibole) Blank s/cc
 Sensitivity (chrysotile) Blank s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 270801085 ISO 11-14-08 DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801085
Lab Sample Number:	270801085
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	11/14/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, H
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

	F-factor
--	----------

Grid opening traverse direction:

V

COMMENTS

270801085 ISO 11-14-08 DLB.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/17/2008

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00006
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1778
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96.m
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 7

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B5	NO														
↓	B8	NO														
↓	P3	NO														
↓	P5	NO														
2	G3	NO														
↓	G5	NO														
↓	G7	NO														
<i>Relum 10/31/08</i>																

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
(For dust and dustfall, enter 1.0)

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00007
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1763
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, N
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 7

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	C4	ND														
↓	C6	ND														
↓	C8	ND														
↓	E8	ND														
2	C4	ND														
↓	C6	ND														
↓	C8	ND														
<i>Rem 10/31/08</i>																

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00008
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2440
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/21/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:		
Minimum Aspect Ratio (circle one):	none	$\geq 3:1$
		$\geq 5:1$
Minimum Length (μm):		0.5
Minimum Width (μm):		None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	6
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract GO Chrys
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H4	ND														
↓	H6	ND														
↓	H8	ND														
2	C3	ND														
↓	C5	ND														
↓	C7	ND														
R/KM 14/31/08																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

(V) Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00009
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	2402
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, P
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 6

Target # of Structures: 50

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A3	NO														
↓	A5	NO														
↓	B4	NO														
2	A4	NO														
↓	A7	NO														
↓	C7	NO														
<i>Recm 10/31/08</i>																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00010
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	0
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, Q
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	02	ND														
	04	ND														
	06	ND														
	08	ND														
	010	ND														
2	02	ND														
	04	ND														
	06	ND														
	08	ND														
	010	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
 V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00016
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	2625
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 5

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
↓	B6	ND														
↓	B8	ND														
2	H4	ND														
2	H6	ND														
Rem 10/31/08																

F-factor Calculation:

Indirect Prep Inputs

<input type="text"/>	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
<input type="text"/>	First resuspension volume or rinsate volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

<input type="text"/>	Second resuspension volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL) or used for serial dilution
<input type="text"/>	Third resuspension volume (mL)
<input type="text"/>	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

<input type="text"/>	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00017
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2675
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, S
Archive filter(s) storage location	Westmont
QA Type (Not QA, Re-count Same, Re-count Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
<div> <div>none</div> <div>$\geq 3:1$</div> <div>$\geq 5:1$</div> </div>	
Minimum Length (μm):	0.5
Minimum Width (μm):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	5
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	NO														
↓	H7	NO														
↓	H9	NO														
2	C5	NO														
2	C7	NO														
R/Cm 10/31/08																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

☐ H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00018
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	2538
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, T
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 5

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A5	ND														
↓	A7	ND														
↓	A9	ND														
2	C3	ND														
2	C5	ND														
R/CN 10/31/08																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing

[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00019
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2523
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.1
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

<u>Recording Rules:</u>	
Minimum Aspect Ratio (circle one):	
<div style="display: flex; justify-content: space-around; align-items: center;"> none $\geq 3:1$ $\geq 5:1$ </div>	
Minimum Length (um):	0.5
Minimum Width (um):	None

<u>Stopping Rules:</u>	
Target Sensitivity:	0.0024
Max # of GOs:	5
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B3	NO														
↓	B5	NO														
↓	B7	NO														
2	A3	NO														
2	A5	NO														
R/cm 10/31/08																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) ☒ Yes ☐ No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00020
Sample Type (A=Air, D=Dust, DF=Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	D
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.13
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):
 none ≥ 3:1 ≥ 5:1
 Minimum Length (um): 0.5
 Minimum Width (um): None

Stopping Rules:

Target Sensitivity:
 Max # of GOs: 10
 Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I19	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00026
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1961
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 7

Target # of Structures: 50

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
↓	H7	ND														
↓	H9	ND														
2	C4	ND														
↓	C6	ND														
↓	C8	ND														
↓	D9	ND														
Ruled 10/31/08																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BD-00027
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	8
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity:

Max # of GOs: 10

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	02	ND														
	04	ND														
	06	ND														
	08	ND														
	010	ND														
2	02	ND														
	04	ND														
	06	ND														
	08	ND														
	010	ND														
	02	ND														

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BB-00028
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1968
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 7

Target # of Structures: 50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
↓	B4	ND														
↓	B6	ND														
↓	B8	ND														
2	B3	ND														
↓	B5	ND														
↓	B7	ND														
Blank 10/31/08																

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BP-00034
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1718
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 8

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
	B4	ND														
	B6	ND														
	D3	ND														
2	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
<hr/>																
<hr/>																

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00035
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1718
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, i=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 8

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D3	ND														
↓	D5	ND														
↓	D7	ND														
↓	D9	ND														
2	G2	ND														
↓	G4	ND														
↓	G6	ND														
↓	G8	ND														
Recount 10/31/08																

F-factor Calculation:

Indirect Prep Inputs

 Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)

 First resuspension volume or rinsate volume (mL)

 Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

 Second resuspension volume (mL)

 Volume applied to secondary filter (mL) or used for serial dilution

 Third resuspension volume (mL)

 Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

 Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

☒ H Horizontal
☐ V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

RS

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	<u>0.013</u>
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	<u>385</u>
Secondary Filter Area (mm ²)	<u>360</u>
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00026
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1961
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	11/3/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Same

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	7
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
↓	H7	ND														
↓	H9	ND														
2	C4	ND														
↓	C6	ND														
↓	C8	ND														
↓	D9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

(LB)

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	0
Date received by lab	
Lab Job Number:	270801085
Lab Sample Number:	270801085
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	11/14/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity:

Max # of GOs: 10

Target # of Structures: 50

F-Factor Calculation (Indirect Preps Only):
Enter data in appropriate cells provided to the right—>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B7	ND														
1	B9	ND														
1	I4	ND														
1	J5	ND														
1	J9	ND														
2	D3	ND														
1	J5	ND														
1	I2	ND														
1	I4	ND														
1	G6	ND														

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal
Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

Chain of Custody Record

From: CDM
60 Port Blvd, Ste. 200
Libby, MT 59923

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
1595 Wynkoop Street
Denver, CO 80202-1129

No. L14650

Send to: EMSL-Mobile Lab
107 W 4th St
Libby, MT 59923

via: ☒ hand delivery ☐ shipped

Date Shipped: 10/20/2008

Carrier Name: Hand-delivered

Airbill: NA

270801085

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm2)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	BA-00035		9/23/2008	A	1718 L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-C	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	BA-00036		9/23/2008	A	0 L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	Archive OU6RR0908-D	<input checked="" type="checkbox"/>

Total Number of Samples 16

END OF SUBMITTAL

Additional Comments: See attachment

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
<i>[Signature]</i> CDM	10.20.08 1221	<i>[Signature]</i> J. Wyatt-Rosado / EMSL	10/20/08/1221	OK to accept
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
<i>[Signature]</i> J. Wyatt-Rosado / EMSL	11/24/08/1045	<i>[Signature]</i> L. Ramonada / EMSL	12/4/08 9:04	Complete
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

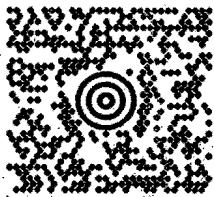
JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET
LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:

CHARLES LACERRA
856-858-4800 1253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

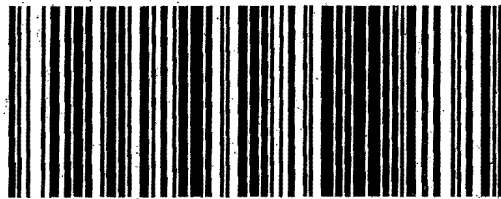


NJ 081 9-06

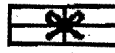


UPS GROUND

TRACKING #: 1Z Y84 048 03 9389 9115

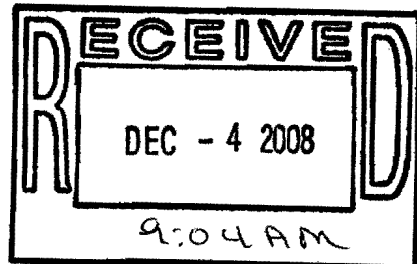


BILLING: P/P



TM

1Z Y84048035
P: PIN
HADDON T
107 HAD
EMSL
DEC 4 2008 9:04 AM



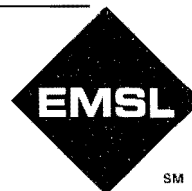
EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800

Fax: (856) 858-9551

**LETTER OF TRANSMITTAL**

To: <u>Scott Carney</u>	Date: <u>December 22, 2008</u>
<u>EMR, Inc.</u>	From: <u>Charles E. LaCerra</u>
<u>11 East Superior Street</u>	Re: <u>Libby, MT BNSF Work</u>
<u>Suite 260</u>	<u>Mobile Lab Analytical Reports</u>
<u>Duluth, MN 55802</u>	<u>See Below</u>
<u>Phone: 763-277-5200</u>	

We are sending you: **× Attached** Under separate cover via _____

<input type="checkbox"/> Solicitation	<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Invoice #'s See Below
<input type="checkbox"/> Subcontract	<input type="checkbox"/> As noted	<input type="checkbox"/> Other
<input type="checkbox"/> Laboratory Samples	<input checked="" type="checkbox"/> Analytical Reports	

These are transmitted as indicated below:

<input type="checkbox"/> Execute ___ Original(s)	<input type="checkbox"/> Review & Comment	<input type="checkbox"/> For Approval
<input type="checkbox"/> Return ___ Original(s)	<input type="checkbox"/> As Requested	<input type="checkbox"/> Respond as instructed
<input checked="" type="checkbox"/> For Your Information/File		<input type="checkbox"/> Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801086

Please feel free to contact me with any questions or if you require additional information

Copy to: _____

Signed: _____

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:52:25 PM

Order ID: 270801086

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: L14651
Samples collected 9/23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

EMSL Order: 270801086
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

Test: TEM ISO 10312 **Matrix** Air **TAT:** 3 weeks **Qty:** 15

Acct Sts: **Slsprsn:** epodell

Logged: jwyattpescador **Date:** 10/20/08

Billing Frequency: With Report

Sample ☒ Acceptable
Condition: ☐ Unacceptable

Comments

- ☐ Exempt from prep charge
☐ Exempt from lab opening fee
☐ Exempt from layer/aliquot charges

Prepped: KL **Date:** 10/20/08
Analyzed: KL **Date:** 11/4/08
Data Entry: KL **Date:** 11/4/08 + 11/20/08
Screened: KL **Date:** 11/23/08
Mailed: KL **Date:** 12/23/08

Special Instructions

Pre hardcopy review 12-12-08 by KL

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801086	270801086-0001	A BA-00044		11/10/2008 12:21:00 P
270801086	270801086-0002	B BA-00045		11/10/2008 12:21:00 P
270801086	270801086-0003	BA-00046	Archive	11/10/2008 12:21:00 P
270801086	270801086-0004	C BA-00052		11/10/2008 12:21:00 P
270801086	270801086-0005	D BA-00053		11/10/2008 12:21:00 P
270801086	270801086-0006	E BA-00054		11/10/2008 12:21:00 P
270801086	270801086-0007	F BA-00055		11/10/2008 12:21:00 P
270801086	270801086-0008	BA-00056	Archive	11/10/2008 12:21:00 P
270801086	270801086-0009	BA-00057	Archive	11/10/2008 12:21:00 P
270801086	270801086-0010	BA-00063	Damaged	11/10/2008 12:21:00 P
270801086	270801086-0011	G BA-00064		11/10/2008 12:21:00 P

RS, LB, RP

EMSL Analytical, Inc., 107 West 4th Street, Libby, MT 59923

Page 1 of 2

2708-EMR-96(A-L)

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:52:25 PM

Order ID: 270801086

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: L14651
Samples collected 9/23, 24, 25/2008

EMSL Order: 270801086
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

270801086	270801086-0012 H BA-00065	11/10/2008 12:21:00 P
270801086	270801086-0013 I BA-00066	11/10/2008 12:21:00 P
270801086	270801086-0014 J BA-00067 RP	11/10/2008 12:21:00 P
270801086	270801086-0015 K BA-00068 RS, RP <i>mpf 11/17/08</i>	11/10/2008 12:21:00 P

RS, LB, RP

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00044
 QA Type Not QA
 Lab Sample Number 270801086-0001
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1915 L
 Sensitivity (amphibole) 3.97E-04 s/cc
 Sensitivity (chrysotile) 3.97E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00044_270801086-0001_ISO_11-04-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00044
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/4/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, A
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
7	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00044_270801086-0001_ISO_11-04-08_D.xls

EPA SAMPLE ID:
LAB SAMPLE ID:

BA-00044
270801086-0001

Sample Type	Air
Count Rule	10312

Prep	Direct
QA Type	Not QA

ERROR CHECK

OK - No errors found

Data Entry by:
Data Entry date:

L. Ramowski
11/11/2008

QA by:	K. Lusher
QA date:	11/28/2008

11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00045
 QA Type Not QA
 Lab Sample Number 270801086-0002
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1915 L
 Sensitivity (amphibole) 3.97E-04 s/cc
 Sensitivity (chrysotile) 3.97E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00045_270801086-0002_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00045
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, B
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
7	Maximum # of GOs
50	Maximum # of Structures
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00045 270801086-0002 ISO 11-05-08 D.xls

EPA SAMPLE ID:

LAB SAMPLE ID:

BA-00045

270801086-0002

Sample Type

Air

Count Rule

10312

Prep

Direct

QA Type

Not QA

ERROR CHECK

OK - No errors found

Data Entry by:

L. Ramowski

Data Entry date:

11/11/2008

QA by:

K. Lusher

QA date:

11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00052
 QA Type Not QA
 Lab Sample Number 270801086-0004
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1626 L
 Sensitivity (amphibole) 4.67E-04 s/cc
 Sensitivity (chrysotile) 4.67E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00052 270801086-0004 ISO 11-05-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00052
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1626
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, C
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00052 270801086-0004 ISO 11-05-08 D.xls

Prep	Direct
QA Type	Not QA

OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00053
 QA Type Not QA
 Lab Sample Number 270801086-0005
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1619 L
 Sensitivity (amphibole) 4.69E-04 s/cc
 Sensitivity (chrysotile) 4.69E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00053_270801086-0005_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX (30)	
Voltage (KV)	100 kV	
Magnification	19,000 X	
Grid opening area (mm2)	0.0130	
Scale: 1L =	1.000	
Scale: 1D =	1.000	
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360.0	
Category	Field	▼
Filter Status	Analyzed	▼

EPA Sample Number:	BA-00053	
Sample Type	Air	▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1619.0	
Date received by lab	10/20/2008	
Lab Job Number:	270801086	
Lab Sample Number:	270801086-0005	
Number of grids prepared	5	
Prepared by	K. Barnes	
Preparation date	10/20/2008	
EPA COC Number	L14651	

Analyzed by	R. Pescador	
Analysis date	11/5/2008	
Prep	Direct	▼
If sample type = air, is there loose material or debris in the bowl?	No	▼
Counting rules	ISO (Air or Dust)	▼
Grid storage location	2708-EMR-96, D	
Archive filter(s) storage location	Westmont	
F- factor		
F- factor	1	
QA Type	Not QA	▼

Recording Rules:

≥ 3:1	▼	Minimum Aspect Ratio
0.50		Minimum Length (um)
none		Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
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COMMENTS

TEM Asbestos Structure Count

BA-00053_270801086-0005_ISO_11-05-08_D.xls

LAB SAMPLE ID:

270801086-0005

Count Rule

10312

QA Type

Not QA

ERROR CHECK

OK - No errors found

Data Entry date:

11/11/2008

QA date:

11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00054
 QA Type Not QA
 Lab Sample Number 270801086-0006
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1634 L
 Sensitivity (amphibole) 4.65E-04 s/cc
 Sensitivity (chrysotile) 4.65E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00054_270801086-0006_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00054
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1634.0
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, E
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00054_270801086-0006_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00055
 QA Type Not QA
 Lab Sample Number 270801086-0007
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1634 L
 Sensitivity (amphibole) 4.65E-04 s/cc
 Sensitivity (chrysotile) 4.65E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	8	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00055 270801086-0007 ISO-11-05-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00055
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1634
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
if sample type = air, is there loose material or debris in the container?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, F
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00055 270801086-0007 ISO 11-05-08 D.xls

OK - No errors found

11/28/2008

GO name
check

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Damaged
 EPA Sample Number BA-00063
 QA Type Not QA
 Lab Sample Number 270801086-0010
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 0
 Number of Grid Openings (chrysotile) 0
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1170 L
 Sensitivity (amphibole) s/cc
 Sensitivity (chrysotile) s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00063 270801086-0010 ISO 01-00-00 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Damaged

EPA Sample Number:	BA-00063
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1170.0
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0010
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number	L14651

Analyzed by	
Analysis date	
Prep	Direct
in sample type - air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

damaged filter

BA-00063_270801086-0010_ISO_01-00-00_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00064
QA Type	Not QA
Lab Sample Number	270801086-0011
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1170 L
Sensitivity (amphibole)	6.49E-04 s/cc
Sensitivity (chrysotile)	6.49E-04 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check	OK	OK	OK
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Grand total	0	OK
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CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00064 270801086-0011 ISO 11-05-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00064
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, G
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00064_270801086-0011_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00065
 QA Type Not QA
 Lab Sample Number 270801086-0012
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1178 L
 Sensitivity (amphibole) 6.45E-04 s/cc
 Sensitivity (chrysotile) 6.45E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00065_270801086-0012_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	380.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00065
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the container?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, H
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00065_270801086-0012_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00066
 QA Type Not QA
 Lab Sample Number 270801086-0013
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1170 L
 Sensitivity (amphibole) 6.49E-04 s/cc
 Sensitivity (chrysotile) 6.49E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00066_270801086-0013_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00066
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, I
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

BA-00066_270801086-0013_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00067
 QA Type Not QA
 Lab Sample Number 270801086-0014
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1178 L
 Sensitivity (amphibole) 6.45E-04 s/cc
 Sensitivity (chrysotile) 6.45E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
 Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00067_270801086-0014_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00067
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, J
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00067 270801086-0014 ISO 11-05-08 D.xls

Prep	Direct
QA Type	Not QA

OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00068
 QA Type Not QA
 Lab Sample Number 270801086-0015
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 39
 Number of Grid Openings (chrysotile) 39
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1178 L
 Sensitivity (amphibole) 6.45E-04 s/cc
 Sensitivity (chrysotile) 6.45E-04 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00068_270801086-0015_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00068
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00068_270801086-0015_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

2	H2	ND
2	H4	ND
2	H6	ND
2	H8	ND

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
EPA Sample Number 0
QA Type LB
Lab Sample Number 270801086
Sample Type Air
Category Blank
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 10
Number of Grid Openings (chrysotile) 10
Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 0 L
Sensitivity (amphibole) Blank s/cc
Sensitivity (chrysotile) Blank s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK
Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		≥ 5
C = Chrysotile	c		>.5	≥ 5
	d	≥.5 to < 5	≤.5	≥ 5
	e	5 to 10	≤.5	≥ 5
	f	>10	≤.5	≥ 5

PCME: Length > 5 um, Width ≥ 0.25 um, Aspect Ratio ≥ 3:1

FILE NAME: 270801086_ISO_11-05-08_DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801086
Lab Sample Number:	270801086
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
if sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, L
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:	V
----------------------------------	---

COMMENTS

270801086 ISO 11-05-08 DLB.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed
 EPA Sample Number BA-00068
 QA Type RS
 Lab Sample Number 270801086-0015
 Sample Type Air
 Category Field
 Prep Direct
 Counting Rules 10312

PARAMETERS

Effective filter area 385.0 mm2
 Indirect factor 1.00E+00
 Number of Grid Openings (amphibole) 10
 Number of Grid Openings (chrysotile) 10
 Grid opening area 0.0130 mm2
 Volume (L) or Area (cm2) 1178 L
 Sensitivity (amphibole) 2.51E-03 s/cc
 Sensitivity (chrysotile) 2.51E-03 s/cc

Recording**Rules:**

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping**Rules:**

Target S	Max GOs	Max N
0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00068_270801086-0015_ISO_12-01-08_DRS.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00068
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the bowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Recount Same

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

BA-00068_270801086-0015_ISO_12-01-08_DRS.xls

OK - No errors found

QA by:	K. Lusher
QA date:	12/3/2008

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312
SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00067
QA Type	RP
Lab Sample Number	270801086-0014
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	11
Number of Grid Openings (chrysotile)	11
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1178 L
Sensitivity (amphibole)	2.29E-03 s/cc
Sensitivity (chrysotile)	2.29E-03 s/cc

Recording
Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping
Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK

Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00067_270801086-0014_ISO_12-01-08_DRP.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00067
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0014
Number of grids prepared	5
Prepared by	E. Wyatt-Pescador
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
if sample type = air, is there loose material or debris in the container?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-108, A
Archive filter(s) storage location	Westmont
F- factor	1
QA Type	Repreparation

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
50	Maximum # of GOs
11	Maximum # of Structure
	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

COMMENTS

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

BA-00067_270801086-0014_ISO_12-01-08_DRP.xls

ERROR CHECK
OK - No errors found

QA by:	K. Lusher
QA date:	12/3/2008

Target Sensitivity Reached-Complete current GO, then stop.

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00044
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1915
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/4/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cow? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
Minimum Length (um): 0.5	
Minimum Width (um): None	

Stopping Rules:	
Target Sensitivity:	0.0001
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

☒ Horizontal
☐ Vertical

Are prepped grids acceptable for analysis? (circle one) ☒ No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

2708-EMR-96, A

[illegible]

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00044	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0001	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-96, A

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00045
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1915
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
Minimum Length (um): 0.5	
Minimum Width (um): None	

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	39
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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2708-EMR-96, B

[illegible]

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00045	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0002	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-96, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.	
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS		
2	I1	ND															
1	I3	ND															
	I5	ND															
	I7	ND															
	I9	ND															
	H2	ND															
	H4	ND															
	H6	ND															
	H8	ND															
	H10	ND															
	G1	ND															
	G3	ND															
	G5	ND															
	G7	ND															
	RMP 11/5/04																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00052
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1626
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
Minimum Length (um): 0.5	
Minimum Width (um): None	

Stopping Rules:	
Target Sensitivity:	0.0001
Max # of GOs:	39
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	P2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
2	F10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

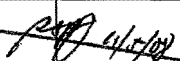
Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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2708-EMR-96, C

[illegible]

2708-EMR-96, C

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
<div style="text-align: center;">  </div>																

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00053
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1619
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity:

0.0004

Max # of GOs:

39

Target # of Structures:

50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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2708-EMR-96, D

[illegible]

2708-EMR-96, D

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00054
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1634
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024 <u>0.0004</u>
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
☒ V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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2708-EMR-96, E

[illegible]

2708-EMR-96, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
↓	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G1	ND														
↓	G3	ND														
	G5	NP														
	G7	ND														
R249 4/5/00																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00055
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1634
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0034
Max # of GOs:	39
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00055	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0007	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-96, F

[illegible]

2708-EMR-96, F

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00063
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0010
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024 1242-0
Max # of GOs:	39
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right →

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
			DAMAGED		FILTER											

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00064
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):
Enter data in appropriate cells provided to the right-->

Recording Rules:

Minimum Aspect Ratio (circle one):
none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024
0.0001

Max # of GOs: 39

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
↓	I10	ND														

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinse volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00064	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0011	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-96, G

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00065
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>0.0024</u> <u>0.0001</u>
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	NO														
1	I9	NO														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00065	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0012	SAMPLE TYPE	A	Not QA	GRID STORAGE LOC.	2708-EMR-96, H

[illegible]

2708-EMR-96, H

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00066
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity:

0.0024 1/21201

Max # of GOs:

39

Target # of Structures:

50

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
1	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	NO														
2	G9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

9 VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

2708-EMR-96, I

[illegible]

2708-EMR-96. I

[illegible]

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00067
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>0.0624</u> 0.0001
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H1	ND														
1	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
10	G10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

1 VerticalAre prepped grids acceptable for analysis? (circle one) YES No

If No, explain:

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

[illegible]

2708-EMR-96, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
↓	G7	ND														
<div style="text-align: right;"> <i>2007/11/18</i> </div>																

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00068
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>≥ 3:1</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	<u>0.0024</u> 0.0004
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V VerticalAre prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:**Indirect Prep Inputs**

	Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)
	First resuspension volume or rinse volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

2708-EMR-96, K

[illegible]

2708-EMR-96, K

[illegible]

**BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count**

LB

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	
Date received by lab	
Lab Job Number:	270801086
Lab Sample Number:	270801086
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, L
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none <u>(≥ 3:1)</u> ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
2	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

**BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count**

RS

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000X
Grid opening area (mm ²)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00068
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	12/1/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the bowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Same

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1
Minimum Length (um): 0.5	
Minimum Width (um): none	

Stopping Rules:	
Target Sensitivity:	0.00024
Max # of GOs:	11
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
--	--

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00067	QA TYPE	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0014	SAMPLE TYPE	A	Re-prep.	GRID STORAGE LOC.	2708-EMR-108, A

[illegible]

Chain of Custody Record

From: CDM

60 Port Blvd, Ste. 200

Libby, MT 59923

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII

1595 Wynkoop Street

Denver, CO 80202-1129

No. L14651

Send to: EMSL-Mobile Lab

107 W 4th St

Libby, MT 59923

via: ☒ hand delivery ☐ shipped

Date Shipped: 10/20/2008

Carrier Name: Hand-delivered

Airbill: NA

270801086

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm ²)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	BA-00068		9/25/2008	A	1178 L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-C	<input checked="" type="checkbox"/>

Total Number of Samples

15

END OF SUBMITTAL

Additional Comments:

<i>Kari Com</i>	<i>10.20.08 1221</i>	<i>State of Montana - Responder/ems</i>	<i>10/20/08/1221</i>	<i>on accept</i>
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
<i>State of Montana - Responder/ems</i>	<i>11/24/08/1045</i>	<i>L. Bannister EMSL</i>	<i>12/4/08 9:04</i>	<i>Complete</i>
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt



APPENDIX H

SOIL SAMPLE LABORATORY REPORTS

EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800

Fax: (856) 858-9551

EMSL

SM

LETTER OF TRANSMITTAL

To: Scott Carney	Date: July 3, 2009
EMR, Inc.	From: Charles E. LaCerra
11 East Superior Street	Re: Libby, MT BNSF Work
Suite 260	Mobile Lab Analytical Reports
Duluth, MN 55802	See Below
Phone: 763-277-5200	

We are sending you: **× Attached** **Under separate cover via**

<input type="checkbox"/> Solicitation	<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Invoice #'s See Below
<input type="checkbox"/> Subcontract	<input type="checkbox"/> As noted	<input type="checkbox"/> Other
<input type="checkbox"/> Laboratory Samples	<input checked="" type="checkbox"/> Analytical Reports	

These are transmitted as indicated below:

<input type="checkbox"/> Execute ___ Original(s)	<input type="checkbox"/> Review & Comment	<input type="checkbox"/> For Approval
<input type="checkbox"/> Return ___ Original(s)	<input type="checkbox"/> As Requested	<input type="checkbox"/> Respond as instructed
<input checked="" type="checkbox"/> For Your Information/File		<input type="checkbox"/> Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270900047

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles E. LaCerra

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: All applicable data package deliverables are included in the following nine pages. Using the print option will print out all forms necessary and in the appropriate order. Please provide information as directed.

Analytical Test Report
Bulk Asbestos Analysis by Polarized Light Microscopy (PLM)

Prepared For: EMR, Inc. 11 East Superior Street
 City/State: Duluth, MN 55802
 Laboratory Name: EMSL Analytical, Inc.
 City/State: Libby, Montana
 Laboratory Job No.: 270900047
 Method Utilized
 (SOP and Rev. No.): SRC-Libby-03, Rev. 1
 Circle One: Visual Estimation Point Counting Approach

Report Reviewed by: _____

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: For PLM analytical results raw data packages, complete and sign the following checklist. Attach supporting documentation as outlined below. Organize the supporting documentation in the order listed below. Paginate the completed raw data package.

Laboratory
Verification
(Initials and
Date)

Validator
Verification
(Initials and
Date)

- 1 **Number of samples received:** 79
An SDG is defined as no more than 200 samples.
Additional Supporting Documentation: Attach COC forms having footer R (report).
KB 4/27/09 6/22/09 *sc*
- 2 **Date of sample receipt and condition of samples:** 4/24/2009 OK
For Condition of samples enter "OK" or "See SDG Case Narrative".
KB 4/27/09 6/22/09 *sc*
- 3 **SDG Case Narrative:**
Additional Supporting Documentation: Attach SDG Narrative and any modification forms.
KB 4/27/09 6/22/09 *sc*
- 4 **Check for contamination (daily):** Wipe microscope slides with lens paper before using.
Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.
KB 4/27/09 N/A
- 5 **Verification of the refractive indices of the refractive index liquids once per month:**
Additional Supporting Documentation: Provide information indicating a monthly record of checking each of the four liquids including liquid name, lot number and analyst initials. (See table - Results of RI Liquids Calibration)
KB 4/27/09 N/A
- 6 **Verification of microscope adjustments prior to each SDG:**
Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.
KB 4/27/09 N/A
- 7 **Reference material - Visual Estimation Approach:**
Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.
KB 4/27/09 N/A
Reference material - Point Counting Approach:
Additional Supporting Documentation: Provide calibration curve documentation, printed from the EDD spreadsheet.
KB 4/27/09 N/A
- 8 **VE and/or PC hard copy data forms (as presented in the EDD spreadsheet):**
Additional Supporting Documentation: Copies of the Hard Copy Data Forms for all investigative samples and laboratory duplicates will be provided from systems that are entered electronically.
KB 4/27/09 6/22/09 *sc*
- 9 **Bench sheets for data results:**
Additional Supporting Documentation: Provide copies of the hand written or LIMS system generated raw data sheets for sample results.
KB 4/27/09 6/22/09 *sc*

COCs

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

09 APR 2009 12:40

RECEIVED

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00001	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00002	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00003	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00004	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00005	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00006	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00007	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00008	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00009	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00010	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00011	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 789 042209

Carrie Madind CDM 4/22/09 1200	R. K. Mahony EMSL 4/24/09 1345	OK Accept
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Elizbeth J. Wheat-Reccorder/ems 5/15/09 0836		
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

09 APR 2009 12:41
RECEIVED
270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00012	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00013	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00014	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00015	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00016	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00017	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00018	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00019	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00020	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00021	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00022	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 989042209

Carrie Madrid CDM 4/22/09 1200	R K Mahoney EMSL	4/24/09 1345	OK Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Elizbeth J. Wyatt-Pescador/EMSL 5/15/09/0836			
Relinquished by (Signature and Company)	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

09 APR 2009 PM 12:41

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

RECEIVED
270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
✓	RR-00023	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00025	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00026	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00027	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00028	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00029	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00030	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00031	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00032	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00033	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00034	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79 END OF SUBMITTAL

Additional Comments: 001d 987042209

Carie Madrid com 4/22/09/1200 R.K. Mahony EMSL	4/22/09 1345	OK Accept
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)
Elisabeth J. Whit-fencader/emsl 5/15/09/0836	5/15/09/0836	
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

09 APR 10 PM 12:41

REC'D

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
	RR-00035	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00036	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00037	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00038	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00039	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00040	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00041	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00042	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00043	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00044	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00045	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 4/24/09

Carrie Madrid CDM 4/22/09 1200	R. K. Mahoney EMSL 4/24/09 1345	OK Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Elmer J. Wyatt-Percador/EMSL 5/15/09/0836		
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

09 APR 23 PM 12:41

via: ☐ hand delivery ☒ shipped

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

RECEIVED
FBI
270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
	RR-00046	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00047	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00048	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00049	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00050	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00051	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00052	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00053	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00054	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00055	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00056	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 759 042209

Cairne Madind com 4/22/09 1200

Relinquished by (Signature and Company)

Date/Time

R.K. Mahany EMSL

Received by (Signature and Company)

4/24/09 1345

Date/Time

OK Robert

Sample Condition upon Receipt

Ephraim J. Wynn - Pearson/EMSL 5/15/09/0836

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
 2714 Walnut St
 Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
 999 18th Street, Suite 300
 Denver, CO 80202-2413

Send to: EMSL-Westmont
 107 Haddon Ave
 Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

09 APR 20 PM 12:41

RECEIVED

PLM

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
	RR-00057	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00058	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00059	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00060	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00061	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00062	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00201	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00202	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00203	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00204	FG	1	11/3/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		
	RR-00205	FG	1	11/4/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 4/22/09

Carrie Madril CDM 4/22/09 1200 R.K. Mahoney EMSL
 Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time

Elyse J. Matt-Pescador/emsl 5/15/09/0936
 Relinquished by (Signature and Company) Date/Time

Received by (Signature and Company) Date/Time

4/24/09 1345
 Date/Time

OK Accept
 Sample Condition upon Receipt

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped

09 APR 23 PM 12:41

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

RECEIVED
FBI
27

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00206	FG	1	11/4/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00207	FG	1	4/13/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00208	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00209	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00210	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00211	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00212	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00213	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00214	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00215	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00216	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

OC'd 489 042209

Carrie Madril CDM 4/22/09 1200

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Relinquished by (Signature and Company)

Date/Time

Received by (Signature and Company)

Date/Time

Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

09 APR 23 PM 12:41

RECEIVED
EMSL

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00217	FG	1	4/21/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00218	FG	1	4/21/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

00'd 989042209

Carrie Madind CDM 4/22/09 1200	R.K. Mahony EMSL 4/24/09 1345	OK Accept		
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Elisabeth J. Whitt-Pescador/EMSL 5/15/09/0836	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31,
11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Test: PLM Libby VE

Matrix: Soils

TAT: 72 Hour

Qty: 79

Acct Sts:

Slsprsn: epodell

Logged: rmahoney

Date: 4/24/2009

Inter-Lab Sample Transfer

Samples Relinquished: _____ **Date:** _____

Samples Received: _____ **Date:** _____

Package Mailed to Westmont: _____ **Date:** _____

Method of Delivery: _____

Includes: (Circle)

Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ **Date:** _____

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments: No prep involved, only analysis.

Initial Prep (Initials/Lab): KRS

Date: 4/27-4/30/09

Filter Prep (Initials/Lab):

Date:

Grid Prep (Initials/Lab):

Date:

For Special Projects Use Only

QC Selection:

Date:

Date Package Review: TP

Date: 4/29/09

Date Package Mailed: OL

Date: 7/3/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0001	RR-00001		4/27/2009 1:45:00 PM
270900047	270900047-0002	RR-00002		4/27/2009 1:45:00 PM
270900047	270900047-0003	RR-00003		4/27/2009 1:45:00 PM
270900047	270900047-0004	RR-00004		4/27/2009 1:45:00 PM
270900047	270900047-0005	RR-00005		4/27/2009 1:45:00 PM
270900047	270900047-0006	RR-00006		4/27/2009 1:45:00 PM
270900047	270900047-0007	RR-00007		4/27/2009 1:45:00 PM
270900047	270900047-0008	RR-00008		4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31,
11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270900047	270900047-0009	RR-00009	4/27/2009 1:45:00 PM
270900047	270900047-0010	RR-00010	4/27/2009 1:45:00 PM
270900047	270900047-0011	RR-00011	4/27/2009 1:45:00 PM
270900047	270900047-0012	RR-00012	4/27/2009 1:45:00 PM
270900047	270900047-0013	RR-00013	4/27/2009 1:45:00 PM
270900047	270900047-0014	RR-00014	4/27/2009 1:45:00 PM
270900047	270900047-0015	RR-00015	4/27/2009 1:45:00 PM
270900047	270900047-0016	RR-00016	4/27/2009 1:45:00 PM
270900047	270900047-0017	RR-00017	4/27/2009 1:45:00 PM
270900047	270900047-0018	RR-00018	4/27/2009 1:45:00 PM
270900047	270900047-0019	RR-00019	4/27/2009 1:45:00 PM
270900047	270900047-0020	RR-00020	4/27/2009 1:45:00 PM
270900047	270900047-0021	RR-00021	4/27/2009 1:45:00 PM
270900047	270900047-0022	RR-00022	4/27/2009 1:45:00 PM
270900047	270900047-0023	RR-00023	4/27/2009 1:45:00 PM
270900047	270900047-0024	RR-00025	4/27/2009 1:45:00 PM
270900047	270900047-0025	RR-00026	4/27/2009 1:45:00 PM
270900047	270900047-0026	RR-00027	4/27/2009 1:45:00 PM
270900047	270900047-0027	RR-00028	4/27/2009 1:45:00 PM
270900047	270900047-0028	RR-00029	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

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Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31,
11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270900047	270900047-0029	RR-00030	4/27/2009 1:45:00 PM
270900047	270900047-0030	RR-00031	4/27/2009 1:45:00 PM
270900047	270900047-0031	RR-00032	4/27/2009 1:45:00 PM
270900047	270900047-0032	RR-00033	4/27/2009 1:45:00 PM
270900047	270900047-0033	RR-00034	4/27/2009 1:45:00 PM
270900047	270900047-0034	RR-00035	4/27/2009 1:45:00 PM
270900047	270900047-0035	RR-00036	4/27/2009 1:45:00 PM
270900047	270900047-0036	RR-00037	4/27/2009 1:45:00 PM
270900047	270900047-0037	RR-00038	4/27/2009 1:45:00 PM
270900047	270900047-0038	RR-00039	4/27/2009 1:45:00 PM
270900047	270900047-0039	RR-00040	4/27/2009 1:45:00 PM
270900047	270900047-0040	RR-00041	4/27/2009 1:45:00 PM
270900047	270900047-0041	RR-00042	4/27/2009 1:45:00 PM
270900047	270900047-0042	RR-00043	4/27/2009 1:45:00 PM
270900047	270900047-0043	RR-00044	4/27/2009 1:45:00 PM
270900047	270900047-0044	RR-00045	4/27/2009 1:45:00 PM
270900047	270900047-0045	RR-00046	4/27/2009 1:45:00 PM
270900047	270900047-0046	RR-00047	4/27/2009 1:45:00 PM
270900047	270900047-0047	RR-00048	4/27/2009 1:45:00 PM
270900047	270900047-0048	RR-00049	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

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Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31,
11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270900047	270900047-0049	RR-00050	4/27/2009 1:45:00 PM
270900047	270900047-0050	RR-00051	4/27/2009 1:45:00 PM
270900047	270900047-0051	RR-00052	4/27/2009 1:45:00 PM
270900047	270900047-0052	RR-00053	4/27/2009 1:45:00 PM
270900047	270900047-0053	RR-00054	4/27/2009 1:45:00 PM
270900047	270900047-0054	RR-00055	4/27/2009 1:45:00 PM
270900047	270900047-0055	RR-00056	4/27/2009 1:45:00 PM
270900047	270900047-0056	RR-00057	4/27/2009 1:45:00 PM
270900047	270900047-0057	RR-00058	4/27/2009 1:45:00 PM
270900047	270900047-0058	RR-00059	4/27/2009 1:45:00 PM
270900047	270900047-0059	RR-00060	4/27/2009 1:45:00 PM
270900047	270900047-0060	RR-00061	4/27/2009 1:45:00 PM
270900047	270900047-0061	RR-00062	4/27/2009 1:45:00 PM
270900047	270900047-0062	RR-00201	4/27/2009 1:45:00 PM
270900047	270900047-0063	RR-00202	4/27/2009 1:45:00 PM
270900047	270900047-0064	RR-00203	4/27/2009 1:45:00 PM
270900047	270900047-0065	RR-00204	4/27/2009 1:45:00 PM
270900047	270900047-0066	RR-00205	4/27/2009 1:45:00 PM
270900047	270900047-0067	RR-00206	4/27/2009 1:45:00 PM
270900047	270900047-0068	RR-00207	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

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Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31,
11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

270900047	270900047-0069	RR-00208	4/27/2009 1:45:00 PM
270900047	270900047-0070	RR-00209	4/27/2009 1:45:00 PM
270900047	270900047-0071	RR-00210	4/27/2009 1:45:00 PM
270900047	270900047-0072	RR-00211	4/27/2009 1:45:00 PM
270900047	270900047-0073	RR-00212	4/27/2009 1:45:00 PM
270900047	270900047-0074	RR-00213	4/27/2009 1:45:00 PM
270900047	270900047-0075	RR-00214	4/27/2009 1:45:00 PM
270900047	270900047-0076	RR-00215	4/27/2009 1:45:00 PM
270900047	270900047-0077	RR-00216	4/27/2009 1:45:00 PM
270900047	270900047-0078	RR-00217	4/27/2009 1:45:00 PM
270900047	270900047-0079	RR-00218	4/27/2009 1:45:00 PM

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:09 PM

Order ID: 270900047

Attn: Scott Carney
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Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Test: PLM Libby VE

Matrix: Soils

TAT: 72 Hour

Qty: 79

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0001	RR-00001		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/m	Date:	4/30/09
Data Entry:	on	Date:	4/30/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:09 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0002	RR-00002		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	EL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
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Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0003	RR-00003		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	AKM	Date:	4/30/09
Data Entry:	el	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0004	RR-00004		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0005	RR-00005		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	SL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
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Duluth, MN 55802

Fax: (218) 625-2337

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Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0006	RR-00006		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICP	Date:	4/27/09
Preliminary Data Sent to Special Projects:	Rick	Date:	4/30/09
Data Entry:	SL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
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Customer ID: EMRI78
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Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
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4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0007	RR-00007		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	ll	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

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4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0008	RR-00008		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/CN	Date:	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

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Customer ID: EMRI78

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EMSL Order: 270900047

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Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0009	RR-00009		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	ser	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

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EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0010	RR-00010		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

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Customer ID: EMRI78
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EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0011	RR-00011		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	ca	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
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Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0012	RR-00012		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	OL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

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11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0013	RR-00013		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	EB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	4/30/09
Data Entry:	ca	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0014	RR-00014		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>RKB</i>	Date:	<i>4/27/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>du</i>	Date:	<i>5/1/09</i>
Structure Review:	<i>du</i>	Date:	
Data Validation:	<i>PP</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/1/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0015	RR-00015		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RRM	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0016	RR-00016		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KRB	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	oe	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0017	RR-00017		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VPJ	Date:	4/27/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	ec	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0018	RR-00018		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP	Date:	4/27/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	OL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0019	RR-00019		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP?	Date:	4/27/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	el	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0020	RR-00020		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>4/27/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>ce</i>	Date:	<i>5/4/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/4/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/4/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0021	RR-00021		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>4/27/09</i>
Preliminary Data Sent to Special Projects:	<i>R/Can</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>se</i>	Date:	<i>5/1/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/1/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0022	RR-00022		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KLB</i>	Date:	<i>4/28/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>de</i>	Date:	<i>5/1/09</i>
Structure Review:		Date:	
Data Validation:	<i>TD</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/1/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0023	RR-00023		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	4/30/09
Data Entry:	ca	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0024	RR-00025		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	el	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	6/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0025	RR-00026		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Date Entry:	DL	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0026	RR-00027		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	su	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0027	RR-00028		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	REM	Date:	4/30/09
Data Entry:	su	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0028	RR-00029		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPS	Date:	4/28/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	Qu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0029	RR-00030		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/km	Date:	4/30/09
Data Entry:	ec	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0030	RR-00031		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>4/28/09</i>
Preliminary Data Sent to Special Projects:	<i>Rkm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>SL</i>	Date:	<i>5/4/09</i>
Structure Review:		Date:	
Data Validation:	<i>TR</i>	Date:	<i>5/4/09</i>
Reported to Client:	<i>TR</i>	Date:	<i>5/4/09</i>

Micrographs:

	Microngraph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0031	RR-00032		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	jm	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
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11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0032	RR-00033		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPS	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKM	Date:	4/30/09
Data Entry:	de	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0033	RR-00034		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
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Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0034	RR-00035		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R Km	Date:	4/30/09
Data Entry:	Q	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0035	RR-00036		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	4/28/09
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	4/30/09
Data Entry:	<i>DL</i>	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	<i>TR</i>	Date:	5/1/09
Reported to Client:	<i>TR</i>	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMR178

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0036	RR-00037		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/20/09
Data Entry:	ew	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0037	RR-00038		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>4/28/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>OL</i>	Date:	<i>5/1/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/1/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0038	RR-00039		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0039	RR-00040		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	OL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/4/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Phone: (218) 625-2332

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0040	RR-00041		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>4/28/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>OL</i>	Date:	<i>5/1/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/1/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0041	RR-00042		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	LIB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Date Entry:	SL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0042	RR-00043		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCS	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R Km	Date:	4/30/09
Data Entry:	lu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0043	RR-00044		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	4/30/09
Data Entry:	SC	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0044	RR-00045		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	ce	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0045	RR-00046		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	JS	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0046	RR-00047		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	de	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0047	RR-00048		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	Q	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0048	RR-00049		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	er	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0049	RR-00050		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	su	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0050	RR-00051		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/20/09
Data Entry:	EL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/1/09
Reported to Client:	JP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0051	RR-00052		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/Ken	Date:	4/30/09
Date Entry:	OL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0052	RR-00053		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micromgraph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0053	RR-00054		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Date Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMR178

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0054	RR-00055		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	de	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0055	RR-00056		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	a	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/4/09
Reported to Client:	JP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0056	RR-00057		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	LB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	sc	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micromgraph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0057	RR-00058		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	eu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0058	RR-00059		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	er	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0059	RR-00060		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	SL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0060	RR-00061		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	de	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0061	RR-00062		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R. Kim	Date:	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	FP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0062	RR-00201		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	sc	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0063	RR-00202		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	4/29/09
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	4/30/09
Data Entry:	<i>de</i>	Date:	5/1/09
Structure Review:	<i>de</i>	Date:	
Data Validation:	<i>PP</i>	Date:	5/1/09
Reported to Client:	<i>PP</i>	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0064	RR-00203		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	Se	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0065	RR-00204		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	4/30/09
Data Entry:	oc	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0066	RR-00205		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ILB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	EL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0067	RR-00206		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	4/30/09
Data Entry:	ST	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0068	RR-00207		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/km	Date:	4/30/09
Data Entry:	EL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0069	RR-00208		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	ce	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0070	RR-00209		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	R/kan	Date:	4/30/09
Data Entry:	SL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0071	RR-00210		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VR	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	OL	Date:	5/1/09
Structure Reviewer:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/21, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0072	RR-00211		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	Qu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0073	RR-00212		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPS	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Date Entry:	du	Date:	5/1/09
Structure Review:		Date:	
Date Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0074	RR-00213		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	li	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/4/09
Reported to Client:	TR	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0075	RR-00214		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPD	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RICM	Date:	4/30/09
Data Entry:	la	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 635-2337 Phone: (218) 635-2332

Project: D2591

Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900047

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0076	RR-00215		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VP	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL CANNON CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/21, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0077	RR-00216		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>RB</i>	Date:	<i>4/30/09</i>
Preliminary Data Sent to Special Projects:	<i>R/Ken</i>	Date:	<i>4/30/09</i>
Data Entry:	<i>JL</i>	Date:	<i>5/1/09</i>
Structure Review:		Date:	
Data Validation:	<i>TR</i>	Date:	<i>5/1/09</i>
Reported to Client:	<i>TR</i>	Date:	<i>5/1/09</i>

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 27090047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2337
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/1, 11/3,
4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0078	RD-00047		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP	Date:	4/30/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	4/30/09
Data Entry:	DL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/4/09
Reported to Client:	DR	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 27090047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-0217 Phone: (218) 625-2322
Project: D2591
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	27090047-0079	RR-00219		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKM	Date:	4/30/09
Data Entry:	lu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

SDG NARRATIVE

Instructions: The following information should be included in all narratives. Please see the attached narrative template.

- 1** List the method or methods used.
- 2** For any modifications, reference the modification number and attach a copy of the signed document to the raw data package.
- 3** If sample condition is not "OK", explain why and any implications to the data.



EMSL ANALYTICAL, INC.

www.emsl.com

Corporate Office & Lab
107 Haddon Avenue
Westmont, NJ 08108
PH 800-220-3675
PH 856-858-4800
FAX 856-858-4766

June 22, 2009

Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802
Phone: 763-277-5200

RE: SDG Narrative – PLM Analysis by SRC-Libby-03, Revision 2
EMSL Analytical, Inc. Laboratory Order ID: 270900047

Dear Mr. Carney:

Seventy-Nine (79) samples were received in a sealed box on 4/24/09 and signed for by the sample-receiving clerk. These samples were assigned to an internal EMSL laboratory order ID number of 270900047, each sample was assigned a unique, sequential laboratory ID number, and the job was entered into the Laboratory Information System (LIMS). The laboratory ID numbers and the login information are summarized on the EMSL internal Chain of Custodies. Sample condition and signatures are recorded on Chain of Custody D2591 as submitted by CDM Libby, MT.

These samples were analyzed in accordance with SRC-Libby-03, Revision 2 for the Analysis of Asbestos Fibers in Soil by Polarized Light Microscopy, Visual Estimation Approach, with modifications described in Laboratory Modification document:.

Results were e-mailed to the Libby Distribution Group on 5/1/09. If you have any questions or require additional information, please do not hesitate to contact me at 856-858-4800, ext. 1253.

Sincerely,
EMSL Analytical, Inc.

Charles LaCerra
Special Projects Manager

Ann Arbor, MI • Atlanta, GA • Baton Rouge, LA • Beltsville, MD • Boston, MA • Buffalo, NY
Carle Place, NY • Charleston, SC • Chicago, IL • Denver, CO • Houston, TX • Indianapolis, IN • Kernersville, NC
Libby, MT • Los Alamitos, CA (dba LA Testing) • Miami, FL • Minneapolis, MN • New York, NY
Orlando, FL • Pensacola, FL • Phoenix, AZ • Piscataway, NJ • Plymouth Meeting, PA • Raleigh, NC
S. Pasadena, CA (dba LA Testing) • San Leandro, CA • St. Louis, MO • Wallingford, CT • Westmont, NJ

Locally Focused...Nationally Recognized

STANDARD LABORATORY DATA PACKAGE CHECKLIST

SAMPLE RESULTS

See Attached Sample Results

Instructions: These sample result forms are from the PLM (VE & PC) Data Sheet and EDD.xls file. They are labeled in this file as the VE or PC hard copy data form.

FILE NAME: EMSL27_270900047_PLM_VE.xls

Version : 7c

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name: EMSL27
Job Number: 270900047
Date Received: 4/24/2009
SOP Name/Revision: SRC-LIBBY-03 (Rev 2)
Spreadsheet version: 7c

Date Entry by: L. Ramowski
Date Entry Date: 5/1/2009
QC Check by: T. Peters
QC Check Date: 5/1/2009

																OPTICAL PROPERTIES FOR LA (see key for data entry inputs)										
						Stereomicroscopy Examination		Libby Amphibole (LA)			Other Amphibole (OA)		Chrysotile (Ch)													
EPA Index ID	Index Suffix Char	Index No.	QA Type (NOT CA, LDS, LDCI)	Lab Sample ID	Date Analyzed	Analyst Name	Sample Appearance	Qual	LA-MF (%)	Bin	Qual	OA-AF (%)	CA Type (AMOS, ANTH, CROC, UNK)	Qual	Ch-AF (%)	Deviation?	Comments	Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Extinct Angle	Ref. Index α	Ref. Index γ	Bref	Optical Comments
RR-00001	FG	1	Not QA	270900047-0001	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00002	FG	1	Not QA	270900047-0002	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00003	FG	1	Not QA	270900047-0003	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00004	FG	1	Not QA	270900047-0004	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00005	FG	1	Not QA	270900047-0005	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00006	FG	1	Not QA	270900047-0006	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00007	FG	1	Not QA	270900047-0007	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00008	FG	1	Not QA	270900047-0008	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00009	FG	1	Not QA	270900047-0009	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00010	FG	1	Not QA	270900047-0010	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00011	FG	1	Not QA	270900047-0011	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00012	FG	1	Not QA	270900047-0012	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00013	FG	1	Not QA	270900047-0013	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00014	FG	1	Not QA	270900047-0014	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00015	FG	1	Not QA	270900047-0015	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00016	FG	1	Not QA	270900047-0016	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00017	FG	1	Not QA	270900047-0017	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00018	FG	1	Not QA	270900047-0018	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00019	FG	1	Not QA	270900047-0019	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00020	FG	1	Not QA	270900047-0020	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00021	FG	1	Not QA	270900047-0021	4/27/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00022	FG	1	Not QA	270900047-0022	4/28/2009	K. Barnes	homogeneous, non-fib	TR	0.1	B1	ND	0		ND	0			ST	C	+	N	O	1.625	1.633	L	
RR-00023	FG	1	Not QA	270900047-0023	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00025	FG	1	Not QA	270900047-0024	4/28/2009	K. Barnes	homogeneous, non-fib	TR	0.1	B1	ND	0		ND	0			ST	C	+	N	O	1.626	1.631	L	
RR-00026	FG	1	Not QA	270900047-0025	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00027	FG	1	Not QA	270900047-0026	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00028	FG	1	Not QA	270900047-0027	4/28/2009	K. Barnes	an/heterogeneous, fibro	ND	0	A	ND	0		ND	0											
RR-00029	FG	1	Not QA	270900047-0028	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00030	FG	1	Not QA	270900047-0029	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00031	FG	1	Not QA	270900047-0030	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00032	FG	1	Not QA	270900047-0031	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00033	FG	1	Not QA	270900047-0032	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00034	FG	1	Not QA	270900047-0033	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00035	FG	1	Not QA	270900047-0034	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00036	FG	1	Not QA	270900047-0035	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00037	FG	1	Not QA	270900047-0036	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00038	FG	1	Not QA	270900047-0037	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00039	FG	1	Not QA	270900047-0038	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00040	FG	1	Not QA	270900047-0039	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00041	FG	1	Not QA	270900047-0040	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00042	FG	1	Not QA	270900047-0041	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00043	FG	1	Not QA	270900047-0042	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00044	FG	1	Not QA	270900047-0043	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00045	FG	1	Not QA	270900047-0044	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00046	FG	1	Not QA	270900047-0045	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00047	FG	1	Not QA	270900047-0046	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00048	FG	1	Not QA	270900047-0047	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00049	FG	1	Not QA	270900047-0048	4/28/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00050	FG	1	Not QA	270900047-0049	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00051	FG	1	Not QA	270900047-0050	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00052	FG	1	Not QA	270900047-0051	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00053	FG	1	Not QA	270900047-0052	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00054	FG	1	Not QA	270900047-0053	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00055	FG	1	Not QA	270900047-0054	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00056	FG	1	Not QA	270900047-0055	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00057	FG	1	Not QA	270900047-0056	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00058	FG	1	Not QA	270900047-0057	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00059	FG	1	Not QA	270900047-0058	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00060	FG	1	Not QA	270900047-0058	4/29/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00061	FG	1	Not QA	270900047-006-																						

FILE NAME: EMSL27_270900047_PLM_VE.xls

Version : 7c

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name: EMSL27
 Job Number: 270900047
 Date Received: 4/24/2009
 SOP Name/Revision: SRC-LIBBY-03 (Rev 2)
 Spreadsheet version: 7c

Data Entry by: L. Ramowski
 Data Entry Date: 5/1/2009
 QC Check by: T. Peters
 QC Check Date: 5/1/2009

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA LGS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination	Libby Amphibole (LA)			Other Amphibole (OA)			Chrysotile (Ch)		Deviation?	Comments	OPTICAL PROPERTIES FOR LA (see key for data entry inputs)										
							Sample Appearance	Qual	LA-MF (%)	Bin	Qual	OA-AF (%)	OA Type (AMOS, ANTH, CROC, UNK)	Qual	Ch-AF (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Extinct. Angle	Ref. Index α	Ref. Index γ	Biref.	Optical Comments		
RR-00212	FG	1	Not QA	270900047-0073	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00213	FG	1	Not QA	270900047-0074	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00214	FG	1	Not QA	270900047-0075	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00215	FG	1	Not QA	270900047-0076	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00216	FG	1	Not QA	270900047-0077	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00217	FG	1	Not QA	270900047-0078	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												
RR-00218	FG	1	Not QA	270900047-0079	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0			ND	0												

STANDARD LABORATORY DATA PACKAGE CHECKLIST

BENCH SHEETS

Instructions: Please provide handwritten or LIMS system generated raw data sheets for sample results.

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Date Received 4/24/2009

Job Number 270900047

SOP Name/Revision SRC-Libby-03 Rev. 2 4/20/09

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination				Libby Amphibole		Other Amphibole					
							Sample Appearance	Est. % LA		Est. % OA and C		Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)							
RR-00001	FG	1	NOTQA	270900047-0001	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00002	FG	1	NOTQA	-0002	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00003	FG	1	NOTQA	-0003	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00004	FG	1	NOTQA	-0004	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00005	FG	1	NOTQA	-0005	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00006	FG	1	NOTQA	-0006	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00007	FG	1	NOTQA	-0007	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00008	FG	1	NOTQA	-0008	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00009	FG	1	NOTQA	-0009	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00010	FG	1	NOTQA	-0010	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00011	FG	1	NOTQA	-0011	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00012	FG	1	NOTQA	-0012	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00013	FG	1	NOTQA	-0013	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00014	FG	1	NOTQA	-0014	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00015	FG	1	NOTQA	-0015	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00016	FG	1	NOTQA	-0016	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00017	FG	1	NOTQA	-0017	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00018	FG	1	NOTQA	-0018	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00019	FG	1	NOTQA	-0019	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00020	FG	1	NOTQA	-0020	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00021	FG	1	NOTQA	-0021	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00022	FG	1	NOTQA	-0022	4/28/09	KBarnes	Tan, homogeneous non-fibrous	TR	0.1	ND	0	TR	0.1	ND	0			

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)							
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ	Biref.
RR-00001	ND	0										
RR-00002	ND	0										
RR-00003	ND	0										
RR-00004	ND	0										
RR-00005	ND	0										
RR-00006	ND	0										
RR-00007	ND	0										
RR-00008	ND	0										
RR-00009	ND	0										
RR-00010	ND	0										
RR-00011	ND	0										
RR-00012	ND	0										
RR-00013	ND	0										
RR-00014	ND	0										
RR-00015	ND	0										
RR-00016	ND	0										
RR-00017	ND	0										
RR-00018	ND	0										
RR-00019	ND	0										
RR-00020	ND	0										
RR-00021	ND	0										
RR-00022	ND	0			ST	C	+	N	0	1.625	1.633	L

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Date Received 4/24/2009

Job Number 270900047

SOP Name/Revision SRC-Libby-03 Rev. 4 ^{2 CB} _{4/30}

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination					Libby Amphibole		Other Amphibole				
							Sample Appearance	Est. % LA		Est. % OA and C		Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)							
RR-00023	FG	1	NOTQA	-0023	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00025	FG	1	NOTQA	-0024	4/28/09	KBarnes	Tan, homogeneous non-fibrous	TR	0.1	ND	0	TR	0.1	ND	0			
RR-00026	FG	1	NOTQA	-0025	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00027	FG	1	NOTQA	-0026	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00028	FG	1	NOTQA	-0027	4/28/09	KBarnes	Tan, heterogeneous fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00029	FG	1	NOTQA	-0028	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00030	FG	1	NOTQA	-0029	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00031	FG	1	NOTQA	-0030	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00032	FG	1	NOTQA	-0031	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00033	FG	1	NOTQA	-0032	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00034	FG	1	NOTQA	-0033	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00035	FG	1	NOTQA	-0034	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00036	FG	1	NOTQA	-0035	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00037	FG	1	NOTQA	-0036	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00038	FG	1	NOTQA	-0037	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00039	FG	1	NOTQA	-0038	4/28/09	KBarnes	black, nonfibrous homogeneous	ND	0	ND	0	ND	0	ND	0			
RR-00040	FG	1	NOTQA	-0039	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00041	FG	1	NOTQA	-0040	4/28/09	KBarnes	black, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00042	FG	1	NOTQA	-0041	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00043	FG	1	NOTQA	-0042	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00044	FG	1	NOTQA	-0043	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			
RR-00045	FG	1	NOTQA	-0044	4/28/09	KBarnes	brown, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0			

Note: Data Recording Sheet is formatted to print on 11x17 paper.

[illegible]

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Date Received 4/24/2009

Job Number 270900047

SOP Name/Revision SRC-Libby-03 Rev 2 4/20/08

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination				Libby Amphibole		Other Amphibole			
							Sample Appearance	Est. % LA		Est. % OA and C		Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, <)
RR-00046	FG	1	NOTQA	-0045	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00047	FG	1	NOTQA	-0046	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00048	FG	1	NOTQA	-0047	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00049	FG	1	NOTQA	-0048	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00050	FG	1	NOTQA	-0049	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00051	FG	1	NOTQA	-0050	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00052	FG	1	NOTQA	-0051	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00053	FG	1	NOTQA	-0052	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00054	FG	1	NOTQA	-0053	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00055	FG	1	NOTQA	-0054	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00056	FG	1	NOTQA	-0055	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00057	FG	1	NOTQA	-0056	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00058	FG	1	NOTQA	-0057	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00059	FG	1	NOTQA	-0058	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00060	FG	1	NOTQA	-0059	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00061	FG	1	NOTQA	-0060	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00062	FG	1	NOTQA	-0061	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00201	FG	1	NOTQA	-0062	4/29/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00202	FG	1	NOTQA	-0063	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00203	FG	1	NOTQA	-0064	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00204	FG	1	NOTQA	-0065	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00205	FG	1	NOTQA	-0066	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	

Note: Data Recording Sheet is formatted to print on 11x17 paper.

[illegible]

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name **EMSL27**

Job Number 270900047

Date Received 4/24/2009

SOP Name/Revision SRC-Libby-03 Rev. 1 4/30/11

[illegible]

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)						
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ
RR-00206	ND	0									
RR-00207	ND	0									
RR-00208	ND	0									
RR-00209	ND	0									
RR-00210	ND	0									
RR-00211	ND	0									
RR-00212	ND	0									
RR-00213	ND	0									
RR-00214	ND	0									
RR-00215	ND	0									
RR-00216	ND	0									
RR-00217	ND	0									
RR-00218	ND	0									
KRM 4/30/09											

PLMVE: SRC-LIBBY-03, REV. 1

Asbestos Analysis of Bulk Materials via EPA 800/1-571-110 Method using Polarized Light Microscopy

VB/H/24/09

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC			
COLOR (C)			Asbestos		Fibrous		Non-Fibrous		Optical Properties			
1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		Morphology (M) 1. Wavy 6. Scalloped 2. Straight 7. Fibred 3. Uniform Diameter 8. Medulla 4. Ribbon-Like 9. Exotic Shapes 5. Tapered Ends 10. Other Pleochroism (P) 1. Yes 2. No Birefringence (B) 1. Low: 0.010 2. Med: 0.016-0.030 3. High: >0.030 4. None 0.00 or Isotropic Fiber Color (FC) 1. White 2. Brown 3. Beige 4. Blue 5. Green 6. Colorless Sign of Elongation (S) 1. + 2. - 3. Variable Extinction (E) 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose			
TEXTURE (T)			Stereo Asbestos Est. %		Other Fibrous Type %		Non-Fibrous Type %		Non-Asb Char. Ex. E4		Optical Properties	
1 Fibrous 2 Non-Fibrous 3 Other Homogeneity (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)		Treat	Asbestos Type	% of Asbestos	Type	%	Type	%				
RR-00001	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00002	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00003	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00004	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00005	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00006	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00007	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00008	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00009	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	
RR-00010	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100			⊥ R.I. R.I. M S P B (FC) E	

Analyst: KBanner

Date: 4/27/09

Computer:

Date:

Room Temp (C): 18.3

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1

Asbestos Analysis of Bulk Materials via EPA 600/R-93/110 Method using Polarized Light

Microscopy

Rev. 2
KB 4/30/09

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic			Treatment	COMPONENT TYPES						MICROSCOPIC					
COLOR (C)				Asbestos		Fibrous		Non-Fibrous		Optical Properties					
1 Brown	4 White	7 Black	1 Teased	1 Chrysotile	7 Cellulose	14 Quartz	1. Wavy			Morphology (M)			Sign of Elongation (S)		
2 Gray	5 Red	8 Silver	2 Crushed	2 Amosite	8 Glass	15 Mica	2. Straight			6. Scaled			7. Plated		
3 Tan	6 Various	9 Blue	3 Dissolve	3 Anthophyllite	9 Min. Wool	16 Gypsum	3. Uniform Diameter			8. Medulla			9. Exotic Shape		
		10 Yellow	4 Ashed	4 Tremolite	10 Synthetic	17 Cal. Carbonate	4. Rhomb-Like			10. Other			2. Variable		
			5 Heated	5 Actinolite	11 Other	18 Matrix	5. Tapered Ends			1. Yes			1. Parallel		
			6 Melted	6 Crocidolite	12 Wollastonite	19 Perlite	6. No			2. No			2. Symmetrical		
TEXTURE (T)						13 Hair	7. None 0.00 or Isotropic			3. High >0.050			3. Oblique		
1 Fibrous 2 Non-Fibrous 3 Other										4. None 0.00 or Isotropic			4. Undulose		
HOMOGENEITY (H)										5. Green			5. Colorless		
1 Homogeneous 3 OTHER										6. Colorless					
2 Heterogeneous 4 Layers (#)															
Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type %	Non-Fibrous Type %	Non-Asb Char. Ex. E4	Optical Properties						
RR-00011	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00012	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00013	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00014	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00015	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00016	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00017	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00018	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00019	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			
RR-00020	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						
	(T) 2								M						
	(H) 1								P	B	(FC)	E			

Analyst: KBarnes

Date: 4/27/09

Computer:

Date:

Room Temp (C): 20.4

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1

10/24/09

Asbestos Analysis of Bulk Materials via EPA 800/RC-75/110 Method using Polarized Light Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic			Treatment	COMPONENT TYPES				MICROSCOPIC					
COLOR (C)				Asbestos		Fibrous		Non-Fibrous		Optical Properties			
1 Brown	4 White	7 Black	1 Teased	1 Chrysotile	7 Cellulose	14 Quartz			Morphology (M)		Sign of Elongation (S)		
2 Gray	5 Red	8 Silver	2 Crushed	2 Amosite	8 Glass	15 Mica			1. Wavy		1. +		
3 Tan	6 Various	9 Blue	3 Dissolve	3 Anthophyllite	9 Min. Wool	16 Gypsum			2. Straight		2. -		
		10 Yellow	4 Ashed	4 Tremolite	10 Synthetic	17 Cal. Carbonate			3. Uniform Diameter		3. Variable		
			5 Heated	5 Actinolite	11 Other	18 Matrix			4. Ribbon-Like		4. Basic Shape		
			6 Melted	6 Crocidolite	12 Wollastonite	19 Perlite			5. Tapered Ends		5. Other		
TEXTURE (T)						20 Other			Pleochroism (P)		Extinction (E)		
1 Fibrous	2 Non-Fibrous	3 Other							1. Yes		1. Parallel		
HOMOGENEITY (H)									2. No		2. Symmetrical		
1 Homogeneous	3 OTHER								3. High >0.030		3. Oblique		
2 Heterogeneous	4 Layers (#)								4. None 0.00 or isotropic		4. Undulose		
									5. Green		5. Colorless		

Analyst: KBarnes

Date: 4/27/28/09

Computer:

Date:

Room Temp (C): 18.4

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1

Asbestos Analysis of Bulk Materials via EPA 800/1-551-110 Method using Polarized Light Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic			Treatment	COMPONENT TYPES						MICROSCOPIC			
COLOR (C)				Asbestos		Fibrous		Non-Fibrous		Optical Properties			
1 Brown	4 White	7 Black	1 Teased	1 Chrysotile	7 Cellulose	14 Quartz	6. Scaled 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		Morphology (M) 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Scaled 7. Pitted 8. Melic 9. Esoc Shape 10. Other		Sign of Elongation (S) 1. + 2. - 3. Variable		
2 Gray	5 Red	8 Silver	2 Crushed	2 Amosite	8 Glass								
3 Tan	6 Various	9 Blue	3 Dissolve	3 Anthophyllite	9 Min. Wool	10 Synthetic							
	10 Yellow		4 Ashed	4 Tremolite	11 Other	12 Wollastonite							
TEXTURE (T)													
1 Fibrous 2 Non-Fibrous 3 Other													
HOMOGENEITY (H)													
1 Homogeneous 3 OTHER													
2 Heterogeneous 4 Layers (#)													
Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type %	Non-Fibrous Type %	Non-Asb Char. Ex. E4	Optical Properties				
RR-00032	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00033	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00034	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00035	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00036	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00037	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00038	(C) 3	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00039	(C) 7	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00040	(C) 2	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				
RR-00041	(C) 7	1	0	ND	0	—	20	100	⊥ R.I. R.I.				
	(T) 2								M S				
	(H) 1								P B (FC) E				

Analyst: KBarnes

Date: 4/28/09

Computer:

Date:

Room Temp (C): 20.6

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1

ICB
4/30/09

Asbestos Analysis of Bulk Materials via EPA 800/R-93/110 Method using Polarized Light Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC									
COLOR (C)			Asbestos		Fibrous		Non-Fibrous		Optical Properties									
1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		<div> <div>Morphology (M)</div> <div>Sign of Elongation (S)</div> </div> <div> <div>1. Wavy 6. Scalloped 7. Pitted 8. Medusa 9. Exotic Shape 10. Other</div> <div>1. + 2. - 3. Variable</div> </div> <div> <div>Pleochroism (P)</div> <div>Birefringence (B)</div> <div>Fiber Color (FC)</div> <div>Extinction (E)</div> </div> <div> <div>1. Yes 2. No</div> <div>1. Low: 0.010 2. Med: 0.015-0.050 3. High: >0.050 4. None 0.00 or Isotropic</div> <div>1. White 2. Brown 3. Blue 4. Green 5. Colorless</div> <div>1. Parallel 2. Symmetrical 3. Oblique 4. Undulose</div> </div>									
TEXTURE (T)			Stereo Asbestos Est. %		Other Fibrous Type %		Non-Fibrous Type %		Non-Asb Char. Ex. E4		Optical Properties							
1 Fibrous 2 Non-Fibrous 3 Other																		
HOMOGENEITY (H)			Asbestos Type		% of Asbestos		Type %		Type %		Type %		Type %		Type %		Type %	
1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)																		
Sample	Macrosc.	Treat	Asbestos Type		% of Asbestos		Type %		Type %		Type %		Type %		Type %		Type %	
RR-00042	(C) 2 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00043	(C) 2 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00044	(C) 2 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00045	(C) 1 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00046	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00047	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00048	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00049	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00050	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										
RR-00051	(C) 3 (T) 2 (H) 1	1	0	ND	0	—	20	100										

Analyst: KBarnes

Date: 4/28-29/09

Computer:

Date:

Room Temp (C): 21.4

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1 ^{10/30/07}

Asbestos Analysis of Bulk Materials via EPA 600/R-93/110 Method using Polarized Light Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic			Treatment	COMPONENT TYPES						MICROSCOPIC								
COLOR (C)				Asbestos		Fibrous		Non-Fibrous		Optical Properties								
1 Brown	4 White	7 Black	1 Teased	1 Chrysotile	7 Cellulose	14 Quartz	Morphology (M)						Sign of Elongation (S)					
2 Gray	5 Red	8 Silver	2 Crushed	2 Amosite	8 Glass	15 Mica	1. Wavy						4. Scalloped					
3 Tan	6 Various	9 Blue	3 Dissolve	3 Anthophyllite	9 Min. Wool	16 Gypsum	2. Straight						7. Pitted					
		10 Yellow	4 Ashed	4 Tremolite	10 Synthetic	17 Cal. Carbonate	3. Uniform Diameter						8. Medulla					
			5 Heated	5 Actinolite	11 Other	18 Matrix	4. Ribbon-Like						9. Exotic Shape					
			6 Melted	6 Crocidolite	12 Wollastonite	19 Perlite	5. Tapered Ends						10. Other					
TEXTURE (T)						13 Hair	Pleochroism (P)						Birefringence (B)		Fiber Color (FC)		Extinction (E)	
1 Fibrous 2 Non-Fibrous 3 Other							1. Yes						1. Low: 0.010		1. White		1. Parallel	
HOMOGENEITY (H)							2. No						2. Med 0.010-0.050		2. Brown		2. Symmetrical	
1 Homogeneous 3 OTHER							4 Name 0.00 or Isotropic						3 High >0.050		3 Beige		3 Oblique	
2 Heterogeneous 4 Layers (#)													4 None 0.00 or Isotropic		4 Blue		4. Undefined	
															5 Green			
															6 Colorless			
Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type %	Non-Fibrous Type %	Non-Asb Char. Ex. E4	Optical Properties									
RR-00052	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00053	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00054	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00055	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00056	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00057	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00058	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00059	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00060	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			
RR-00061	(C) 3	1	0	ND	0	—	20	100	⊥ R.I.						R.I.			
	(T) 2								M						S			
	(H) 1								P B (FC)						E			

Analyst: VBanner

Date: 4/29/09

Computer: _____

Date: _____

Room Temp (C): 20.0

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1

KJB
4/30/09

Asbestos Analysis of Bulk Materials via EPA 600/4-93-110 Method using Polarized Light

Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic			Treatment		COMPONENT TYPES						MICROSCOPIC							
COLOR (C)					Asbestos		Fibrous		Non-Fibrous		Optical Properties							
1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow			1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted		1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		Morphology (M) 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Other 7. Pined 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S) 1. + 2. - 3. Variable Pleochroism (P) 1. Yes 2. No Birefringence (B) 1. Low: 0.010 2. Med 0.010-0.010 3. High >0.010 4. None 0.00 or Isotropic Fiber Color (FC) 1. White 2. Brown 3. Orange 4. Blue 5. Green 6. Colorless Extinction (E) 1. Parallel 2. Symmetrical 3. Oblique 4. Unidirectional							
TEXTURE (T)					Stereo Asbestos Est. %		Other Fibrous		Non-Fibrous		Non-Asb Char.							
1 Fibrous 2 Non-Fibrous 3 Other 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)							Type %		Type %		Ex. E4							
Sample	Macrosc.	Treat			Asbestos Type	% of Asbestos	Type	%	Type	%			Optical Properties					
RR-00062	(C) 3 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00201	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00202	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00203	(C) 3 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00204	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00205	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00206	(C) 3 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00207	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00208	(C) 4 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					
RR-00209	(C) 3 (T) 2 (H) 1	1	0		ND	0	—		20	100			⊥ R.I. R.I. M S P B (FC) E					

Analyst: KBarnes

Date: 4/29/09

Computer:

Date:

Room Temp (C): 21.5

EMSL Analytical, Inc.

PLM7.9.0

PLMVE: SRC-LIBBY-03, REV. 1 4/30/09

Asbestos Analysis of Bulk Materials via EPA 600/4-93-010 Method using Polarized Light Microscopy

Rev. 2

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC					
COLOR (C)			Asbestos		Fibrous		Non-Fibrous		Optical Properties					
1 Brown	4 White	7 Black	1 Teased	1 Chrysotile	7 Cellulose	14 Quartz	<p>Morphology (M)</p> <p>1. Wavy 6. Scaled 1. +</p> <p>2. Straight 7. Fined 2. +</p> <p>3. Uniform Diameter 8. Medulla 3. Variable</p> <p>4. Ribbon-Like 9. Exotic Shape</p> <p>5. Tapered Ends 10. Other</p> <p>Pleochroism (P)</p> <p>1. Yes 1. Low: 0.010 1. White</p> <p>2. No 2. Med: 0.010-0.050 2. Brown</p> <p>3. High: >0.050 3. Beige</p> <p>4. None 0.00 or Isotropic 4. Blue</p> <p>5. Green</p> <p>6. Colorless</p>							
2 Gray	5 Red	8 Silver	2 Crushed	2 Amosite	8 Glass	15 Mica							<p>Sign of Elongation (S)</p> <p>1. +</p> <p>2. +</p> <p>3. Variable</p>	
3 Tan	6 Various	9 Blue	3 Dissolve	3 Anthophyllite	9 Min. Wool	16 Gypsum	17 Cal. Carbonate		<p>Fiber Color (FC)</p> <p>1. White</p> <p>2. Brown</p> <p>3. Beige</p> <p>4. Blue</p> <p>5. Green</p> <p>6. Colorless</p>					
		10 Yellow	4 Ashed	5 Actinolite	10 Synthetic	17 Cal. Carbonate	18 Matrix		<p>Extinction (E)</p> <p>1. Parallel</p> <p>2. Symmetrical</p> <p>3. Oblique</p> <p>4. Undulose</p>					
			5 Heated	6 Crocidolite	11 Other	18 Matrix	19 Perlite							
			6 Melted		12 Wollastonite	20 Other	20 Other							
TEXTURE (T)			Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	%	Non-Fibrous Type	%	Non-Asb Char.	Optical Properties			
1 Fibrous	2 Non-Fibrous	3 Other								Ex. E4				
HOMOGENEITY (H)														
1 Homogeneous	3 OTHER													
2 Heterogeneous	4 Layers (#)													
Sample	Macrosc.	Treat												
RR-00210	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00211	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00212	(C) 3 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00213	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00214	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00215	(C) 3 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00216	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00217	(C) 4 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
RR-00218	(C) 3 (T) 2 (H) 1	1	0	ND	0	—		20	100		<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			
	(C) (T) (H)							20			<p>⊥ R.I. R.I.</p> <p>M S</p> <p>P B (FC) E</p>			

Analyst: KBanner

Date: 4/30/09

Computer:

Date:

Room Temp (C): 18.1

EMSL Analytical, Inc.

PLM7.9.0

REFRACTIVE INDEX LIQUIDS

Instructions: Please see and follow attached table from Shu-Chun Su, Technical Expert for NVLAP Asbestos Programs. (Suggested Format for Recording Results of RI Liquids Calibration using Cargille Glass Standard and Dispersion Staining Method - Version: February 1996)

The following components are included in the table:

- 1 Date
- 2 Nominal or Labeled n_D 25 degree Celsius
- 3 Cargille Glass
- 3a Nominal or Labeled R.I.
- 3b Lot No.
- 4 Central Stop DS Observation
- 4a Predominant DS Color
- 4b Corresponding α_D
- 5 Liquid or Room Temperature (degree Celsius)
- 6 Actual or Calibrated n_D 25 degree Celsius
- 7 Difference between Calibrated n_D 25 degree Celsius and Labeled n_D 25 degree Celsius
- 8 Accept or Reject
- 9 Analyst

Calibration Of Common RI Oils

Date:

4/17/09

RI Oil		CARGILLE GLASS		CENTRAL STOP DS						
N_D	Lot #	Labeled RI	Lot #	DS Color	λ_0	dN_D/dt	T_R	N_X	$N_D - N_X$	Accept or Reject
1.550	13619HI	1.550	C	BLUE	600	4.91E-04	19.0	1.549	0.001	ACCEPT
1.605	0701	1.600	B	BLUE	620	4.41E-04	19.1	1.601	0.004	ACCEPT
1.680		1.680	C	BLUE	600	4.75E-04	19.1	1.677	0.003	ACCEPT
1.700		1.700				4.80E-04			1.700	REJECT

From Su (1996) RI Oil Conversion Tables
Temperature Corrected

N_D =The Refracted Index the Manufacturer Calibrated for the Oil At 25° C

λ_0 = Associated wavelength of observed Dispersion Staining Color (from McCrone color chart)

dN_D/dt =The Change in Refractive Index per Degree Celsius from RI Oil bottle

T_R =Room Temperature at the Time of the Calibration in °C

N_X =The Refractive Index Measured During Calibration

Analyst:

K. Barman 5/5/09
Signature / Date

4/17/09

[illegible]

Page 1 of 1

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: All applicable data package deliverables are included in the following nine pages. Using the print option will print out all forms necessary and in the appropriate order. Please provide information as directed.

Analytical Test Report
Bulk Asbestos Analysis by Polarized Light Microscopy (PLM)

Prepared For: EMR, Inc. 11 East Superior Street
 City/State: Duluth, MN 55802
 Laboratory Name: EMSL Analytical, Inc.
 City/State: Libby, Montana
 Laboratory Job No.: 270900048
 Method Utilized
 (SOP and Rev. No.): PLM-GRAV (SRC-LIBBY-01, Rev. 1)
 Circle One: Visual Estimation Point Counting Approach

Report Reviewed by: _____

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions:	Laboratory Verification (Initials and Date)	Validator Verification (Initials and Date)
1 <u>Number of samples received:</u> 57 An SDG is defined as no more than 200 samples. Additional Supporting Documentation: Attach COC forms having footer R (report).	<u>KB 4/30/09</u>	<u>ec 4/22/09</u>
2 <u>Date of sample receipt and condition of samples:</u> 4/24/2009 OK For Condition of samples enter "OK" or "See SDG Case Narrative".	<u>KB 4/30/09</u>	<u>ec 4/22/09</u>
3 <u>SDG Case Narrative:</u> Additional Supporting Documentation: Attach SDG Narrative and any modification forms.	<u>KB 4/30/09</u>	<u>ec 4/22/09</u>
4 <u>Check for contamination (daily):</u> Wipe microscope slides with lens paper before using. Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.	<u>KB 4/30/09</u>	<u>N/A</u>
5 <u>Verification of the refractive indices of the refractive index liquids once per month:</u> Additional Supporting Documentation: Provide information indicating a <u>monthly</u> record of checking each of the four liquids including liquid name, lot number and analyst initials. (See table - Results of RI Liquids Calibration)	<u>KB 4/30/09</u>	<u>N/A</u>
6 <u>Verification of microscope adjustments prior to each SDG:</u> Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.	<u>KB 4/30/09</u>	<u>N/A</u>
7 <u>Reference material - Visual Estimation Approach:</u> Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG. <u>Reference material - Point Counting Approach:</u> Additional Supporting Documentation: Provide calibration curve documentation, printed from the EDD spreadsheet.	<u>KB 4/30/09</u>	<u>N/A</u>
8 <u>VE and/or PC hard copy data forms (as presented in the EDD spreadsheet):</u> Additional Supporting Documentation: Copies of the Hard Copy Data Forms for all investigative samples and laboratory duplicates will be provided from systems that are entered electronically.	<u>KB 4/30/09</u>	<u>ec 4/22/09</u>
9 <u>Bench sheets for data results:</u> Additional Supporting Documentation: Provide copies of the hand written or LIMS system generated raw data sheets for sample results.	<u>KB 4/30/09</u>	<u>ec 4/22/09</u>

COCs

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592
Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00001	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00002	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00005	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00011	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00012	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00013	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00014	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00015	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00016	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00017	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00018	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57 END OF SUBMITTAL
Additional Comments: QCD 9/9 042209

Carie Madrid CDM 4/22/09 1250 Elyse J. Watt - Recorder/EMSL 4/24/09 1345 OK d accept
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt
Elyse J. Watt - Recorder/EMSL 5/15/09/1949
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592
Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00019	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00020	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00021	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00022	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00023	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00025	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00027	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00028	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00029	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00030	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00031	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 489 042209

Carrie Madril CDM 4/22/09 1250	Elita J. Wyatt-Pescador/emsl 4/24/09 1345	OK & accept
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Elita J. Wyatt-Pescador/emsl 5/15/09/0949		
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592
Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00032	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00033	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00034	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00035	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00036	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00037	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00039	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00040	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00041	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00042	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00043	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57 END OF SUBMITTAL

Additional Comments: QC'd 989042209

Carmen Madrid CDM 4/22/09 1250	Elizbeth J. Wyatt-Pescador/emsl 4/24/09/1345	OK Accept
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Elizbeth J. Wyatt-Pescador/emsl 5/15/09/0949		
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Received by (Signature and Company)	Sample Condition upon Receipt



Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592
Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped
Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00044	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00045	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00046	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00047	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00048	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00050	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00051	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00052	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00053	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00054	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00055	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

OC'd 989 042209

Carrie Madrid	CDM 4/22/09 1250	Elita J. Wyatt-Pescador/EMSL	4/24/09/1345	OK to accept
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Elita J. Wyatt-Pescador/EMSL	5/15/09/0949			
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2592

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
<input checked="" type="checkbox"/>	RR-00056	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00057	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00058	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00059	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00060	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00061	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00062	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00203	C		10/31/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00206	C		11/4/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00209	C		4/14/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	RR-00212	C		4/15/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		<input checked="" type="checkbox"/>

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

DC'd 4/22/09

Carrie Madril CDM 4/22/09 1250 E. J. Whet-Perceador/ems 4/24/09 1345 OK + accept
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt
E. J. Whet-Perceador/ems 5/5/09/0949
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt
Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2592

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☒ shipped

Date Shipped: 4/22/2009

Carrier Name: Fed-Ex

Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
	RR-00215	C		4/17/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		
	RR-00218	C		4/21/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 989 042209

Carrie Madrid com 4/22/09 1250	Elita J. Wyatt - Percador/EMSL 4/24/09/1345	OK & accept		
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Elita J. Wyatt - Percador/EMSL 5/15/09/0949	Date/Time		Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31,
11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: PLM Libby Gravimetric Matrix Soils

TAT: 72 Hour

Qty: 57

Acct Sts: Sisprsn: epodell

Logged: jwyattpescador Date: 4/24/2009

Inter-Lab Sample Transfer

Samples Relinquished: _____ Date _____

Samples Received: _____ Date _____

Package Mailed to Westmont: _____ Date _____

Method of Delivery: _____

Includes: (Circle)

Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Sample ☒ Acceptable
Condition: ☐ Unacceptable

Comments No prep involved, only analysis.
I poured the samples out of a bag to examine
them under the stereoscope.

Initial Prep (Initials/Lab): KIB

Date: 4/30 - 5/4/09

Filter Prep (Initials/Lab): _____

Date: _____

Grid Prep (Initials/Lab): _____

Date: _____

For Special Projects Use Only:

QC Selection: _____

Date: _____

Date Package Review: _____

Date: 8/10/09

Date Package Mailed: _____

Date: 8/15/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0001	RR-00001		4/27/2009 1:45:00 PM
270900048	270900048-0002	RR-00002		4/27/2009 1:45:00 PM
270900048	270900048-0003	RR-00005		4/27/2009 1:45:00 PM
270900048	270900048-0004	RR-00011		4/27/2009 1:45:00 PM
270900048	270900048-0005	RR-00012		4/27/2009 1:45:00 PM
270900048	270900048-0006	RR-00013		4/27/2009 1:45:00 PM
270900048	270900048-0007	RR-00014		4/27/2009 1:45:00 PM
270900048	270900048-0008	RR-00015		4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31,
11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270900048	270900048-0009	RR-00016	4/27/2009 1:45:00 PM
270900048	270900048-0010	RR-00017	4/27/2009 1:45:00 PM
270900048	270900048-0011	RR-00018	4/27/2009 1:45:00 PM
270900048	270900048-0012	RR-00019	4/27/2009 1:45:00 PM
270900048	270900048-0013	RR-00020	4/27/2009 1:45:00 PM
270900048	270900048-0014	RR-00021	4/27/2009 1:45:00 PM
270900048	270900048-0015	RR-00022	4/27/2009 1:45:00 PM
270900048	270900048-0016	RR-00023	4/27/2009 1:45:00 PM
270900048	270900048-0017	RR-00025	4/27/2009 1:45:00 PM
270900048	270900048-0018	RR-00027	4/27/2009 1:45:00 PM
270900048	270900048-0019	RR-00028	4/27/2009 1:45:00 PM
270900048	270900048-0020	RR-00029	4/27/2009 1:45:00 PM
270900048	270900048-0021	RR-00030	4/27/2009 1:45:00 PM
270900048	270900048-0022	RR-00031	4/27/2009 1:45:00 PM
270900048	270900048-0023	RR-00032	4/27/2009 1:45:00 PM
270900048	270900048-0024	RR-00033	4/27/2009 1:45:00 PM
270900048	270900048-0025	RR-00034	4/27/2009 1:45:00 PM
270900048	270900048-0026	RR-00035	4/27/2009 1:45:00 PM
270900048	270900048-0027	RR-00036	4/27/2009 1:45:00 PM
270900048	270900048-0028	RR-00037	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31,
11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

270900048	270900048-0029	RR-00039	4/27/2009 1:45:00 PM
270900048	270900048-0030	RR-00040	4/27/2009 1:45:00 PM
270900048	270900048-0031	RR-00041	4/27/2009 1:45:00 PM
270900048	270900048-0032	RR-00042	4/27/2009 1:45:00 PM
270900048	270900048-0033	RR-00043	4/27/2009 1:45:00 PM
270900048	270900048-0034	RR-00044	4/27/2009 1:45:00 PM
270900048	270900048-0035	RR-00045	4/27/2009 1:45:00 PM
270900048	270900048-0036	RR-00046	4/27/2009 1:45:00 PM
270900048	270900048-0037	RR-00047	4/27/2009 1:45:00 PM
270900048	270900048-0038	RR-00048	4/27/2009 1:45:00 PM
270900048	270900048-0039	RR-00050	4/27/2009 1:45:00 PM
270900048	270900048-0040	RR-00051	4/27/2009 1:45:00 PM
270900048	270900048-0041	RR-00052	4/27/2009 1:45:00 PM
270900048	270900048-0042	RR-00053	4/27/2009 1:45:00 PM
270900048	270900048-0043	RR-00054	4/27/2009 1:45:00 PM
270900048	270900048-0044	RR-00055	4/27/2009 1:45:00 PM
270900048	270900048-0045	RR-00056	4/27/2009 1:45:00 PM
270900048	270900048-0046	RR-00057	4/27/2009 1:45:00 PM
270900048	270900048-0047	RR-00058	4/27/2009 1:45:00 PM
270900048	270900048-0048	RR-00059	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31,
11/4/ 2008 & 4/ 14, 15, 17, 21/2009

270900048	270900048-0049	RR-00060	4/27/2009 1:45:00 PM
270900048	270900048-0050	RR-00061	4/27/2009 1:45:00 PM
270900048	270900048-0051	RR-00062	4/27/2009 1:45:00 PM
270900048	270900048-0052	RR-00203	4/27/2009 1:45:00 PM
270900048	270900048-0053	RR-00206	4/27/2009 1:45:00 PM
270900048	270900048-0054	RR-00209	4/27/2009 1:45:00 PM
270900048	270900048-0055	RR-00212	4/27/2009 1:45:00 PM
270900048	270900048-0056	RR-00215	4/27/2009 1:45:00 PM
270900048	270900048-0057	RR-00218	4/27/2009 1:45:00 PM

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMR178
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: PLM Libby Gravimetric **Matrix:** Soils **TAT:** 72 Hour **Qty:** 57

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0001	RR-00001		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	5/4/09
Data Entry:	se	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0002	RR-00002		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>YB</i>	Date:	<i>4/30/09</i>
Preliminary Data Sent to Special Projects:	<i>R/Lm</i>	Date:	<i>5/4/09</i>
Date Entry:	<i>Qm</i>	Date:	<i>5/15/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/15/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/19/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0003	RR-00005		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KD	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/15/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0004	RR-00011		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KBS	Date:	4/30/09
Preliminary Data Sent to Special Projects:	Rm	Date:	5/4/09
Data Entry:	li	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0005	RR-00012		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>ICB</i>	Date:	<i>4/30/09</i>
Preliminary Data Sent to Special Projects:	<i>R/KM</i>	Date:	<i>5/4/09</i>
Data Entry:	<i>ee</i>	Date:	<i>5/15/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/15/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/19/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0006	RR-00013		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	De	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0007	RR-00014		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KR	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	Q	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMR178
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0008	RR-00015		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	DL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0009	RR-00016		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	ICB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	du	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0010	RR-00017		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VID	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	el	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0011	RR-00018		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KB</i>	Date:	<i>5/1/09</i>
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	<i>5/4/09</i>
Data Entry:	<i>DL</i>	Date:	<i>5/15/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/15/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/19/09</i>

Micrographs:

	Micograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0012	RR-00019		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPS	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0013	RR-00020		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KAB	Date:	5/11/09
Preliminary Data Sent to Special Projects:	R/CM	Date:	5/4/09
Data Entry:	OK	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0014	RR-00021		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/11/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0015	RR-00022		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VIS	Date:	5/1/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	5/4/09
Data Entry:	DL	Date:	5/6/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0016	RR-00023		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/11/09
Preliminary Data Sent to Special Projects:	R/km	Date:	5/4/09
Data Entry:	da	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0017	RR-00025		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KL</i>	Date:	<i>5/1/09</i>
Preliminary Data Sent to Special Projects:	<i>R/Km</i>	Date:	<i>5/4/09</i>
Data Entry:	<i>OC</i>	Date:	<i>5/15/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/15/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/19/09</i>

Micrographs:

	Micograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0018	RR-00027		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KAB	Date:	5/11/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	DO SL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	DO TP	Date:	5/15/09
Reported to Client:	DO TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0019	RR-00028		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	DL	Date:	5/6/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0020	RR-00029		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KD</i>	Date:	5/1/09
Preliminary Data Sent to Special Projects:	<i>RKm</i>	Date:	5/4/09
Data Entry:	<i>cl</i>	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	<i>TD</i>	Date:	5/15/09
Reported to Client:	<i>TR</i>	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0021	RR-00030		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KJB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	ce	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0022	RR-00031		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	R/Cm	Date:	5/4/09
Date Entry:	SL	Date:	5/15/09
Structure Review:		Date:	
Date Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0023	RR-00032		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0024	RR-00033		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KRB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	SL	Date:	5/13/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0025	RR-00034		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	5/11/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	je	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0026	RR-00035		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/1/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	ec	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0027	RR-00036		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0028	RR-00037		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMR178
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0029	RR-00039		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	el	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0030	RR-00040		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	dl	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0031	RR-00041		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K10	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	de	Date:	5/6/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0032	RR-00042		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KAB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	du	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0033	RR-00043		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0034	RR-00044		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	5/14/09
Data Entry:	ea	Date:	5/19/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMR178
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0035	RR-00045		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	5/4/09
Data Entry:	DL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0036	RR-00046		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Date Entry:	di	Date:	5/5/09
Structure Review:		Date:	
Date Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0037	RR-00047		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	ec	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0038	RR-00048		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	K/B	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/KM	Date:	5/4/09
Data Entry:	QC	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMR178
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0039	RR-00050		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	DL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/15/09
Reported to Client:	TR	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2592**
**Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0040	RR-00051		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KAB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Date Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Date Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0041	RR-00052		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	Rem	Date:	5/4/09
Data Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0042	RR-00053		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	OK	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0043	RR-00054		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	UB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	id	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0044	RR-00055		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Date Entry:	Je	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0045	RR-00056		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	al	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0046	RR-00057		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	5/4/09
Data Entry:	du	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/9/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0047	RR-00058		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	5/4/09
Data Entry:	OK	Date:	6/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0048	RR-00059		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KPB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	cl	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0049	RR-00060		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KJB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Date Entry:	JK	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0050	RR-00061		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KAB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	De	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMR178

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0051	RR-00062		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	<i>KIB</i>	Date:	<i>5/4/09</i>
Preliminary Data Sent to Special Projects:	<i>RKM</i>	Date:	<i>5/4/09</i>
Data Entry:	<i>de</i>	Date:	<i>5/15/09</i>
Structure Review:		Date:	
Data Validation:	<i>TP</i>	Date:	<i>5/15/09</i>
Reported to Client:	<i>TP</i>	Date:	<i>5/19/09</i>

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0052	RR-00203		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KJB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/4/09
Data Entry:	sl	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0053	RR-00206		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KLB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Data Entry:	ea	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0054	RR-00209		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KIB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	el	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337

Phone: (218) 625-2332

Project: D2592

Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78

Customer PO:

Received: 04/24/09 1:45 PM

EMSL Order: 270900048

EMSL Proj ID: BNSF Libby, MT 2008

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0055	RR-00212		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KP	Date:	5/4/09
Preliminary Data Sent to Special Projects:	RKm	Date:	5/4/09
Data Entry:	de	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TR	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0056	RR-00215		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KCB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/cm	Date:	5/4/09
Data Entry:	ca	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332
Project: D2592
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/
2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM
EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0057	RR-00218		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KJB	Date:	5/4/09
Preliminary Data Sent to Special Projects:	R/Km	Date:	5/4/09
Date Entry:	SL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micromgraph Number	Type Diffraction or Morphology

STANDARD LABORATORY DATA PACKAGE CHECKLIST

SDG NARRATIVE

Instructions: The following information should be included in all narratives. Please see the attached narrative template.

- 1 List the method or methods used.
- 2 For any modifications, reference the modification number and attach a copy of the signed document to the raw data package.
- 3 If sample condition is not "OK", explain why and any implications to the data.



EMSL ANALYTICAL, INC.

www.emsl.com

Corporate Office & Lab
107 Haddon Avenue
Westmont, NJ 08108
PH 800-220-3675
PH 856-858-4800
FAX 856-858-4766

June 22, 2009

Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802
Phone: 763-277-5200

RE: SDG Narrative – PLM Analysis by SRC-Libby-03, Revision 2
EMSL Analytical, Inc. Laboratory Order ID: 270900048

Dear Mr. Carney:

Fifty-Seven (57) samples were received in a sealed box on 4/24/09 and signed for by the sample-receiving clerk. These samples were assigned to an internal EMSL laboratory order ID number of 270900048, each sample was assigned a unique, sequential laboratory ID number, and the job was entered into the Laboratory Information System (LIMS). The laboratory ID numbers and the login information are summarized on the EMSL internal Chain of Custodies. Sample condition and signatures are recorded on Chain of Custody D2592 as submitted by CDM Libby, MT.

These samples were analyzed in accordance with SRC-Libby-03, Revision 2 for the Analysis of Asbestos Fibers in Soil by Polarized Light Microscopy, Visual Estimation Approach, with modifications described in Laboratory Modification document:.

Results were e-mailed to the Libby Distribution Group on 5/19/09. If you have any questions or require additional information, please do not hesitate to contact me at 856-858-4800, ext. 1253.

Sincerely,
EMSL Analytical, Inc.

Charles LaCerra
Special Projects Manager

Ann Arbor, MI • Atlanta, GA • Baton Rouge, LA • Beltsville, MD • Boston, MA • Buffalo, NY
Carle Place, NY • Charleston, SC • Chicago, IL • Denver, CO • Houston, TX • Indianapolis, IN • Kernersville, NC
Libby, MT • Los Alamitos, CA (dba LA Testing) • Miami, FL • Minneapolis, MN • New York, NY
Orlando, FL • Pensacola, FL • Phoenix, AZ • Piscataway, NJ • Plymouth Meeting, PA • Raleigh, NC
S. Pasadena, CA (dba LA Testing) • San Leandro, CA • St. Louis, MO • Wallingford, CT • Westmont, NJ

Locally Focused...Nationally Recognized

STANDARD LABORATORY DATA PACKAGE CHECKLIST

SAMPLE RESULTS

See Attached Sample Results

Instructions: These sample result forms are from the PLM (VE & PC) Data Sheet and EDD.xls file. They are labeled in this file as the VE or PC hard copy data form.

Electronic Data Log Sheet v8 for SOP SRC-LIBBY-01 (Stereomicroscopic and Gravimetric Analysis of Coarse Soil)

File Name: GRAV_EMSL27_270900048_04-30-09.xls
 Spreadsheet: Version 8

Lab Name: EMSL27
 SOP Version: PLM-GRAV (SRC-LIBBY-01 REV.1)
 Lab Job No: 270900048

Electronic Data Entry by: L. Ramowski
 Electronic Data Entry date: 05/15/2009

QA by: T. Peters
 QA date: 05/15/2009

Click Here to
 Save File

Key:

- Data entry fields
- Missing required data entry or invalid entry
- Possible data entry omission or error
- Calculated cells--Do not enter data here
- Data entry not required

EPA Index ID	Index Suffix	Lab Job- Sample No.	Status 1 = Analyzed 2 = Missing 3 = Contam 4 = Cancelled	QA Type (Not QA)	Total Sample Weight (g)			Analysis Details		Mass of Asbestos Particles (mg)										Asbestos Fractions			Comments (enter full text, not codes)			
					Tare Weight (g) Empty Container	Mass of Sample + Container (g)	Mass of Sample (g)	Analyst Initials	Analysis Date	Libby Amphibole (LA)			Other Amphibole (OA)				Chrysotile (C)			Values are displayed to two decimal places. Full values are uploaded into database.						
										LA Qual (ND, Tr)	Tare Weight - Container (mg)	Mass of LA + Container (mg)	Mass (mg) LA	OA Qual (ND, Tr)	OA Type (AMOS, ANTH, CROC, UNK)	Tare Weight - Container (mg)	Mass of OA + Container (mg)	Mass (mg) OA	C Qual (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C		% LA	% OA	% C
RR-00001	C	270900048-0001	1	Not QA	2.31	64.29	61.98	KB	4/30/2009	ND				ND				ND								
RR-00002	C	270900048-0002	1	Not QA	2.21	58.93	56.73	KB	4/30/2009	ND				ND				ND								
RR-00005	C	270900048-0003	1	Not QA	2.22	54.77	52.55	KB	4/30/2009	ND				ND				ND								
RR-00011	C	270900048-0004	1	Not QA	2.21	6.96	4.76	KB	4/30/2009	ND				ND				ND								
RR-00012	C	270900048-0005	1	Not QA	2.23	47.79	45.55	KB	4/30/2009	ND				ND				ND								
RR-00013	C	270900048-0006	1	Not QA	2.28	41.73	39.45	KB	4/30/2009	ND				ND				ND								
RR-00014	C	270900048-0007	1	Not QA	2.32	94.82	92.50	KB	4/30/2009	ND				ND				ND								
RR-00015	C	270900048-0008	1	Not QA	2.32	24.19	21.87	KB	4/30/2009	ND				ND				ND								
RR-00016	C	270900048-0009	1	Not QA	2.32	158.26	155.94	KB	4/30/2009	ND				ND				ND								
RR-00017	C	270900048-0010	1	Not QA	2.30	60.22	57.91	KB	5/1/2009	ND				ND				ND								
RR-00018	C	270900048-0011	1	Not QA	2.34	100.56	98.22	KB	5/1/2009	ND				ND				ND								
RR-00019	C	270900048-0012	1	Not QA	2.30	53.67	51.37	KB	5/1/2009	ND				ND				ND								
RR-00020	C	270900048-0013	1	Not QA	2.34	46.46	44.12	KB	5/1/2009	ND				ND				ND								
RR-00021	C	270900048-0014	1	Not QA	2.33	61.81	59.48	KB	5/1/2009	ND				ND				ND								
RR-00022	C	270900048-0015	1	Not QA	2.36	39.58	37.22	KB	5/1/2009	ND				ND				ND								
RR-00023	C	270900048-0016	1	Not QA	2.34	42.46	40.12	KB	5/1/2009	ND				ND				ND								
RR-00025	C	270900048-0017	1	Not QA	2.34	52.15	49.81	KB	5/1/2009	ND				ND				ND								
RR-00027	C	270900048-0018	1	Not QA	2.37	40.50	38.13	KB	5/1/2009	ND				ND				ND								
RR-00028	C	270900048-0019	1	Not QA	2.35	47.80	45.45	KB	5/1/2009	ND				ND				ND								
RR-00029	C	270900048-0020	1	Not QA	2.32	38.78	36.46	KB	5/1/2009	ND				ND				ND								
RR-00030	C	270900048-0021	1	Not QA	2.31	24.01	21.71	KB	5/1/2009	ND				ND				ND								
RR-00031	C	270900048-0022	1	Not QA	2.34	87.78	85.43	KB	5/1/2009	ND				ND				ND								
RR-00032	C	270900048-0023	1	Not QA	2.39	72.12	69.73	KB	5/1/2009	ND				ND				ND								
RR-00033	C	270900048-0024	1	Not QA	2.35	45.12	42.77	KB	5/1/2009	ND				ND				ND								
RR-00034	C	270900048-0025	1	Not QA	2.33	51.68	49.36	KB	5/1/2009	ND				ND				ND								
RR-00035	C	270900048-0026	1	Not QA	2.37	42.91	40.55	KB	5/1/2009	ND				ND				ND								
RR-00036	C	270900048-0027	1	Not QA	2.35	16.75	14.39	KB	5/4/2009	ND				ND				ND								
RR-00037	C	270900048-0028	1	Not QA	2.32	57.13	54.81	KB	5/4/2009	ND				ND				ND								
RR-00039	C	270900048-0029	1	Not QA	2.38	37.56	35.19	KB	5/4/2009	ND				ND				ND								
RR-00040	C	270900048-0030	1	Not QA	2.31	42.71	40.40	KB	5/4/2009	ND				ND				ND								
RR-00041	C	270900048-0031	1	Not QA	2.37	33.37	31.00	KB	5/4/2009	ND				ND				ND								
RR-00042	C	270900048-0032	1	Not QA	2.35	41.72	39.37	KB	5/4/2009	ND				ND				ND								
RR-00043	C	270900048-0033	1	Not QA	2.34	21.88	19.54	KB	5/4/2009	ND				ND				ND								
RR-00044	C	270900048-0034	1	Not QA	2.31	10.60	8.29	KB	5/4/2009	ND				ND				ND								
RR-00045	C	270900048-0035	1	Not QA	2.35	29.16	26.81	KB	5/4/2009	ND				ND				ND								
RR-00046	C	270900048-0036	1	Not QA	2.35	21.80	19.45	KB	5/4/2009	ND				ND				ND								
RR-00047	C	270900048-0037	1	Not QA	2.38	28.73	26.35	KB	5/4/2009	ND				ND				ND								
RR-00048	C	270900048-0038	1	Not QA	2.33	15.74	13.41	KB	5/4/2009	ND				ND				ND								
RR-00050	C	270900048-0039	1	Not QA	2.35	36.11	33.76	KB	5/4/2009	ND				ND				ND								
RR-00051	C	270900048-0040	1	Not QA	2.37	93.97	91.60	KB	5/4/2009	ND				ND				ND								
RR-00052	C	270900048-0041	1	Not QA	2.38	39.96	37.58	KB	5/4/2009	ND				ND				ND								
RR-00053	C	270900048-0042	1	Not QA	2.34	79.05	76.71	KB	5/4/2009	ND				ND				ND								
RR-00054	C	270900048-0043	1	Not QA	2.34	44.03	41.68	KB	5/4/2009	ND				ND				ND								
RR-00055	C	270900048-0044	1	Not QA	2.38	33.84	31.46	KB	5/4/2009	ND				ND				ND								
RR-00056	C	270900048-0045	1	Not QA	2.37	77.62	75.46	KB	5/4/2009	ND				ND				ND								
RR-00057	C	270900048-0046	1	Not QA	2.37	67.86	65.49	KB	5/4/2009	ND				ND				ND								
RR-00058	C	270900048-0047	1	Not QA	2.36	84.44	82.08	KB	5/4/2009	ND				ND				ND								
RR-00059	C	270900048-0048	1	Not QA	2.34	33.26	30.92	KB	5/4/2009	ND				ND				ND								
RR-00060	C	270900048-0049	1	Not QA	2.32	85.85	83.53	KB	5/4/2009	ND				ND				ND								
RR-00061	C	270900048-0050	1	Not QA	2.36	16.91	14.55	KB	5/4/2009	ND				ND				ND								
RR-00062	C	270900048-0051	1	Not QA	2.35	8.20	5.85	KB	5/4/2009	ND				ND				ND								
RR-00203	C	270900048-0052	1	Not QA	2.34	67.22	64.88	KB	5/4/2009	ND				ND				ND								
RR-00206	C	270900048-0053	1	Not QA	2.35	48.54	46.20	KB	5/4/2009	ND				ND				ND								
RR-00209	C	270900048-0054	1	Not QA	2.35	37.01	34.66	KB	5/4/2009	ND				ND				ND								
RR-00212	C	270900048-0055	1	Not QA	2.36	6.04	3.68	KB	5/4/2009	ND				ND				ND								
RR-00215	C	270900048-0056	1	Not QA	2.39	25.47	23.08	KB	5/4/2009	ND				ND				ND								
RR-00218	C	270900048-0057	1	Not QA	2.35	42.73	40.36	KB	5/4/2009	ND				ND				ND								

STANDARD LABORATORY DATA PACKAGE CHECKLIST

BENCH SHEETS

Instructions: Please provide handwritten or LIMS system generated raw data sheets for sample results.

①

Data Log Sheet v8 for SOP SRC-LIBBY-01
Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status 1 = Analyzed 2 = Missing 3 = Contam 4 = Cancelled	QA Type (Not QA)	Total Sample Weight (g)			Analysis Details		Mass of Asbestos Particles (mg)									
					Tare Weight (g) Empty Container	Mass of Sample + Container (g)	Mass of Sample (g)	Analyst Initials	Analysis Date	Libby Amphibole (LA) Asbestos				Other Amphibole (OA) Asbestos					
										LA Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of LA + Container (mg)	Mass (mg) LA	OA Qual* (ND, Tr)	OA Type** (AMOS, ANTH, CROC, UNK)	Tare Weight - Container (mg)	Mass of OA + Container (mg)	Mass (mg) OA	
RR-00001	C	270900048-0001	1	Not QA	2.30862	64.28781		KB	4/30/09	ND				ND					
RR-00002	C	-0002	1	Not QA	2.20504	58.93365		KB	4/30/09	ND				ND					
RR-00005	C	-0003	1	Not QA	2.21944	54.76513		KB	4/30/09	ND				ND					
RR-00011	C	-0004	1	Not QA	2.20862	66.96420		KB	4/30/09	ND				ND					
RR-00012	C	-0005	1	Not QA	2.23470	47.78915		KB	4/30/09	ND				ND					
RR-00013	C	-0006	1	Not QA	2.28155	41.72746		KB	4/30/09	ND				ND					
RR-00014	C	-0007	1	Not QA	2.31503	94.816		KB	4/30/09	ND				ND					
RR-00015	C	-0008	1	Not QA	2.31890	24.19314		KB	4/30/09	ND				ND					
RR-00016	C	-0009	1	Not QA	2.32040	158.26363		KB	4/30/09	ND				ND					
RR-00017	C	-0010	1	Not QA	2.30465	60.21586		KB	5/1/09	ND				ND					
RR-00018	C	-0011	1	Not QA	2.33847	100.56262		KB	5/1/09	ND				ND					
RR-00019	C	-0012	1	Not QA	2.30001	53.66962		KB	5/1/09	ND				ND					
RR-00020	C	-0013	1	Not QA	2.34351	46.46034		KB	5/1/09	ND				ND					
RR-00021	C	-0014	1	Not QA	2.32800	61.8093		KB	5/1/09	ND				ND					
RR-00022	C	-0015	1	Not QA	2.3629	39.5782		KB	5/1/09	ND				ND					
RR-00023	C	-0016	1	Not QA	2.3400	42.4568		KB	5/1/09	ND				ND					
RR-00025	C	-0017	1	Not QA	2.3438	52.1505		KB	5/1/09	ND				ND					
RR-00027	C	-0018	1	Not QA	2.3724	40.4993		KB	5/1/09	ND				ND					
RR-00028	C	-0019	1	Not QA	2.3525	47.8047		KB	5/1/09	ND				ND					

Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

Chrysotile (C) Asbestos							Comments (see Notes below)
C Qual* (ND, T)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C	% LA	% OA	% C	
RR-00001	ND						
RR-00002	ND						
RR-00005	ND						
RR-00011	ND						
RR-00012	ND						
RR-00013	ND						
RR-00014	ND						
RR-00015	ND						
RR-00016	ND						
RR-00017	ND						
RR-00018	ND						
RR-00019	ND						
RR-00020	ND						
RR-00021	ND						
RR-00022	ND						
RR-00023	ND						
RR-00025	ND						
RR-00027	ND						
RR-00028	ND						

3

Data Log Sheet v8 for SOP SRC-LIBBY-01 Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status 1 = Analyzed 2 = Missing 3 = Contam 4 = Cancelled	QA Type (Not QA)	Total Sample Weight (g)			Analysis Details		Mass of Asbestos Particles (mg)								
					Tare Weight (g) Empty Container	Mass of Sample + Container (g)	Mass of Sample (g)	Analyst Initials	Analysis Date	Libby Amphibole (LA) Asbestos				Other Amphibole (OA) Asbestos				
										LA Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of LA + Container (mg)	Mass (mg) LA	OA Qual* (ND, Tr)	OA Type** (AMOS, ANTH, CROC, UNK)	Tare Weight - Container (mg)	Mass of OA + Container (mg)	Mass (mg) OA
RR-00029	C	-0020	1	Not QA	2.3223	36.7803		KB	5/1/09	ND				ND				
RR-00030	C	-0021	1	Not QA	2.3076	24.0132		KB	5/1/09	ND				ND				
RR-00031	C	-0022	1	Not QA	2.3433	87.7760		KB	5/1/09	ND				ND				
RR-00032	C	-0023	1	Not QA	2.3870	72.1193		KB	5/1/09	ND				ND				
RR-00033	C	-0024	1	Not QA	2.3500	45.1191		KB	5/1/09	ND				ND				
RR-00034	C	-0025	1	Not QA	2.3273	51.4838		KB	5/1/09	ND				ND				
RR-00035	C	-0026	1	Not QA	2.3650	42.9136		KB	5/1/09	ND				ND				
RR-00036	C	-0027	1	Not QA	2.3533	16.7451		KB	5/4/09	ND				ND				
RR-00037	C	-0028	1	Not QA	2.3175	57.1317		KB	5/4/09	ND				ND				
RR-00039	C	-0029	1	Not QA	2.3775	37.5649		KB	5/4/09	ND				ND				
RR-00040	C	-0030	1	Not QA	2.3110	42.7118		KB	5/4/09	ND				ND				
RR-00041	C	-0031	1	Not QA	2.3704	33.3664		KB	5/4/09	ND				ND				
RR-00042	C	-0032	1	Not QA	2.3502	41.7234		KB	5/4/09	ND				ND				
RR-00043	C	-0033	1	Not QA	2.3440	21.8823		KB	5/4/09	ND				ND				
RR-00044	C	-0034	1	Not QA	2.3136	10.6020		KB	5/4/09	ND				ND				
RR-00045	C	-0035	1	Not QA	2.3523	29.1622		KB	5/4/09	ND				ND				
RR-00046	C	-0036	1	Not QA	2.3538	21.8010		KB	5/4/09	ND				ND				
RR-00047	C	-0037	1	Not QA	2.3807	28.7286		KB	5/4/09	ND				ND				
RR-00048	C	-0038	1	Not QA	2.3279	15.7417		KB	5/4/09	ND				ND				

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Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

	Chrysotile (C) Asbestos				% LA	% OA	% C	Comments (see Notes below)
	C Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C				
RR-00029	ND							
RR-00030	ND							
RR-00031	ND							
RR-00032	ND							
RR-00033	ND							
RR-00034	ND							
RR-00035	ND							
RR-00036	ND							
RR-00037	ND							
RR-00039	ND							
RR-00040	ND							
RR-00041	ND							
RR-00042	ND							
RR-00043	ND							
RR-00044	ND							
RR-00045	ND							
RR-00046	ND							
RR-00047	ND							
RR-00048	ND							

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Data Log Sheet v8 for SOP SRC-LIBBY-01
Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status 1 = Analyzed 2 = Missing 3 = Contam 4 = Cancelled	QA Type (Not QA)	Total Sample Weight (g)			Analysis Details		Mass of Asbestos Particles (mg)									
					Tare Weight (g) Empty Container	Mass of Sample + Container (g)	Mass of Sample (g)	Analyst Initials	Analysis Date	Libby Amphibole (LA) Asbestos				Other Amphibole (OA) Asbestos					
										LA Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of LA + Container (mg)	Mass (mg) LA	OA Qual* (ND, Tr)	OA Type** (AMOS, ANTH, CROC, UNK)	Tare Weight - Container (mg)	Mass of OA + Container (mg)	Mass (mg) OA	
RR-00050	C	-0039	1	Not QA	2.3487	36.1068		KIB	5/4/09	ND				ND					
RR-00051	C	-0040	1	Not QA	2.3711	93.9703		KIB	5/4/09	ND				ND					
RR-00052	C	-0041	1	Not QA	2.3798	39.9590		KIB	5/4/09	ND				ND					
RR-00053	C	-0042	1	Not QA	2.3390	79.0525		KIB	5/4/09	ND				ND					
RR-00054	C	-0043	1	Not QA	2.3449	44.0286		KIB	5/4/09	ND				ND					
RR-00055	C	-0044	1	Not QA	2.3755	33.8403		KIB	5/4/09	ND				ND					
RR-00056	C	-0045	1	Not QA	2.3666	77.8216		KIB	5/4/09	ND				ND					
RR-00057	C	-0046	1	Not QA	2.3721	67.8613		KIB	5/4/09	ND				ND					
RR-00058	C	-0047	1	Not QA	2.3579	84.4398		KIB	5/4/09	ND				ND					
RR-00059	C	-0048	1	Not QA	2.3355	33.2602		KIB	5/4/09	ND				ND					
RR-00060	C	-0049	1	Not QA	2.3200	85.8471		KIB	5/4/09	ND				ND					
RR-00061	C	-0050	1	Not QA	2.3561	16.9061		KIB	5/4/09	ND				ND					
RR-00062	C	-0051	1	Not QA	2.3492	8.2014		KIB	5/4/09	ND				ND					
RR-00203	C	-0052	1	Not QA	2.3408	67.2166		KIB	5/4/09	ND				ND					
RR-00206	C	-0053	1	Not QA	2.3469	48.5449		KIB	5/4/09	ND				ND					
RR-00209	C	-0054	1	Not QA	2.3464	37.0072		KIB	5/4/09	ND				ND					
RR-00212	C	-0055	1	Not QA	2.3550	6.0377		KIB	5/4/09	ND				ND					
RR-00215	C	-0056	1	Not QA	2.3907	25.4730		KIB	5/4/09	ND				ND					
RR-00218	C	-0057	1	Not QA	2.3459	42.7305		KIB	5/4/09	ND				ND					

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Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

	Chrysotile (C) Asbestos							Comments (see Notes below)
	C Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C	% LA	% OA	% C	
RR-00050	ND							
RR-00051	ND							
RR-00052	ND							
RR-00053	ND							
RR-00054	ND							
RR-00055	ND							
RR-00056	ND							
RR-00057	ND							
RR-00058	ND							
RR-00059	ND							
RR-00060	ND							
RR-00061	ND							
RR-00062	ND							
RR-00203	ND							
RR-00206	ND							
RR-00209	ND							
RR-00212	ND							
RR-00215	ND							
RR-00218	ND							

①

Asbestos Analysis of Bulk Materials via EPA 600/R-95/110 Method using Polarized Light

Microscopy

Client:

Logged:

TAT:



Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAN(SRC-Libby-01,Rev.1)

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC			
			Asbestos		Fibrous		Non-Fibrous		Optical Properties			
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other							
TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other												
HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)												
Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type %	Non-Fibrous Type %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00001	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00002	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00005	(C) 3,7,11	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00011	(C) 3,2	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00012	(C) 6	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00013	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00014	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00015	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00016	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		
RR-00017	(C) 3	1	0	ND	0	---	20	100		⊥ R.I. R.I.		
	(T) 2									M S		
	(H) 2									P B (FC) E		

Analyst: K. Barnes
Room Temp (C): 20.2

Date: 4/30-5/1/09

Computer:

Date:

EMSL Analytical, Inc.

PLM7.9.0

2

~~Asbestos Analysis of Bulk Materials via EPA 600/R-95/110 Method using Polarized Light Microscopy~~

Client:

Logged:

TAT:



Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAN(SRC-Libby-01, Rev.1)

Macroscopic		Treatment		COMPONENT TYPES						MICROSCOPIC			
COLOR (C)				Asbestos		Fibrous		Non-Fibrous		Optical Properties			
1 Brown	4 White	7 Black		1 Chrysotile		7 Cellulose		14 Quartz		Morphology (M)		Sign of Elongation (S)	
2 Gray	5 Red	8 Silver		2 Crushed		8 Glass		15 Mica		1. Wavy	6. Scalloped	1. +	
3 Tan	6 Various	9 Blue		3 Dissolve		9 Min. Wool		16 Gypsum		2. Straight	7. Pitted	2. -	
		10 Yellow		4 Ashed		10 Synthetic		17 Cal. Carbonate		3. Uniform Diameter	8. Mudlike	3. Variable	
				5 Heated		11 Other		18 Matrix		4. Ribbon-Like	9. Exotic Shape		
				6 Melted		12 Wollastonite		19 Perlite		5. Tapered Ends	10. Other		
						13 Hair		20 Other		Pleochroism (P)		Birefringence (B)	
										1. Yes	1. Low: 0.010	1. White	1. Parallel
										2. No	2. Med 0.010-0.050	2. Brown	2. Symmetrical
											3. High >0.050	3. Beige	3. Oblique
											4. None 0.00 or isotropic	4. Blue	4. Uniaxial
											5. Green	5. Colorless	
TEXTURE (T)				Stereo Asbestos Est. %		Other Fibrous Type %		Non-Fibrous Type %		Non-Asb Char. Ex. E4		Optical Properties	
1 Fibrous	2 Non-Fibrous	3 Other											
HOMOGENEITY (H)													
1 Homogeneous	3 OTHER												
2 Heterogeneous	4 Layers (L)												
Sample	Macrosc.	Treat		Asbestos Type	% of Asbestos	Type	%	Type	%	Ex. E4		⊥ R.I.	R.I.
RR-00018	(C) 3	1	0	ND	0	—		20	100				
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00019	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00020	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00021	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00022	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00023	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00025	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00027	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00028	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E
RR-00029	(C) 3	1	0	ND	0	—		20	100			⊥ R.I.	R.I.
	(T) 2											M	S
	(H) 2											P	B (FC) E

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/110 Method using Polarized Light Microscopy~~

3

Client:

Logged:

TAT:



Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAN (SRC-Libby-01, Rev.1)

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC			
COLOR (C)			Asbestos		Fibrous		Non-Fibrous		Optical Properties			
1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M) 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Scalloped 7. Pitted 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S) 1. + 2. - 3. Variable						
TEXTURE (T)			Stereo Asbestos Est. %		Other Fibrous Type %		Non-Fibrous Type %		Non-Asb Char. Ex. E4		Optical Properties	
1 Fibrous 2 Non-Fibrous 3 Other Homogeneity (H) 1 Homogeneous 3 Other 2 Heterogeneous 4 Layers (#)			Asbestos Type	% of Asbestos	Type	%	Type	%			Optical Properties	
Sample	Macrosc.	Treat									± R.I.	R.I.
RR-00030	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00031	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00032	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00033	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00034	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00035	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00036	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00037	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00039	(C) 7	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											
RR-00040	(C) 3	1	0	ND	0	—	20	100			P	B (FC)
	(T) 2										M	S
	(H) 2											

Analyst: VBarnes

Date: 5/14/09

Computer: _____

Date: _____

Room Temp (C): 20.1

EMSL Analytical, Inc.

PLM7.9.0

Asbestos Analysis of Bulk Materials via EPA 600/R-95/110 Method using Polarized Light

Microscopy

Client:

Logged:

TAT:

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAN (SRC-Libby-01, Rev.1)

Macroscopic		Treatment	COMPONENT TYPES							MICROSCOPIC					
			Asbestos		Fibrous		Non-Fibrous			Optical Properties					
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other			Morphology (M) 1. Wavy 6. Stated 2. Straight 7. Pitted 3. Uniform Diameter 8. Medulla 4. Ribbon-Like 9. Esocic Shape 5. Tapered Ends 10. Other Sign of Elongation (S) 1. + 2. - 3. Variable Pleochroism (P) 1. Yes 2. No Birefringence (B) 1. Low: 0.010 2. Med 0.010-0.050 3. High >0.050 4. None 0.00 or Isotropic Fiber Color (FC) 1. White 2. Brown 3. Beige 4. Blue 5. Green 6. Colorless Extinction (E) 1. Parallel 2. Symmetrical 3. Oblique 4. Unobscure					
Sample		Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type %		Non-Fibrous Type %		Non-Asb Char. Ex. E4	Optical Properties			
RR-00041	(C) 7	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00042	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00043	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00044	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00045	(C) 2	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00046	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00047	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00048	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00050	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00051	(C) 3	1	0	ND	0	—	20	100				⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E

Analyst: K Barnes

Date: 5/4/09

Computer: _____

Date: _____

Room Temp (C): 19.6

EMSL Analytical, Inc.

PLM7.9.0

Asbestos Analysis of Bulk Materials via EPA 600/R-95/110 Method using Polarized Light Microscopy

5

Client:

Logged:

TAT:



Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAN (SRC-Libby-01, Rev.1)

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC					
			Asbestos		Fibrous		Non-Fibrous		Optical Properties					
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		Morphology (M) 1. Wavy 6. Splat 7. Pitted 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S) 1. + 2. - 3. Variable Pleochroism (P) 1. Yes 2. No Birefringence (B) 1. Low: 0.010 2. Med 0.010-0.030 3. High >0.030 4. None 0.00 or isotropic Fiber Color (FC) 1. Faint 2. Brown 3. Beige 4. Blue 5. Green 6. Colorless Extinction (E) 1. Parallel 2. Symmetrical 3. Oblique 4. Unilateral					
			Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	%	Non-Fibrous Type	%	Non-Asb Char. Ex. E4	Optical Properties			
RR-00052	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00053	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00054	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00055	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00056	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00057	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00058	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00059	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00060	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E
RR-00061	(C) 3	1	0	ND	0	—		20	100		⊥ R.I. R.I.			
	(T) 2										M S			
	(H) 2										P	B	(FC)	E

Analyst: K. Barnes

Date: 5/4/09

Computer: _____ Date: _____

Room Temp (C): 21.0

EMSL Analytical, Inc.

PLM7.9.0

Asbestos Analysis of Bulk Materials via EPA 600/R-93/110 Method using Polarized Light

~~Microscopy~~

Client:

Logged:

TAT:



Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900048

PLM-GRAY (SRC-Libby-01, Rev. 1)

Macroscopic		Treatment	COMPONENT TYPES						MICROSCOPIC						
			Asbestos		Fibrous		Non-Fibrous		Optical Properties						
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)		1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite		7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair		14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other		Morphology (M) 1. Wavy 6. Scalloped 1. * Sign of Elongation (S) 2. Straight 7. Pleated 2. - 3. Uniform Diameter 8. Medulla 3. Variable 4. Ribbon-Like 9. Exotic Shape 5. Tapered Ends 10. Other Pleochroism (P) 1. Yes 2. No Birefringence (B) 1. Low: 0.010 2. Med: 0.010-0.050 3. High: >0.050 4. None 0.00 or isotropic 5. Green 6. Colored Fiber Color (FC) 1. White 2. Brown 3. Beige 4. Black 5. Green 6. Colored Extinction (E) 1. Parallel 2. Symmetrical 3. Oblique 4. Unidirectional						
Sample		Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	%	Non-Fibrous Type	%	Non-Asb Char. Ex. E4	Optical Properties			
RR-00062	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00203	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00206	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00209	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00212	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00215	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
RR-00218	(C) 3	1	0	ND	D	—			20	100		⊥ R.I. R.I.			
	(T) 2											M S			
	(H) 2											P	B	(FC)	E
KB 5/4/09	(C)								20			⊥ R.I. R.I.			
	(T)	M S													
	(H)	P	B	(FC)	E										
	(C)								20			⊥ R.I. R.I.			
	(T)	M S													
	(H)	P	B	(FC)	E										

Analyst: KBarnes

Date: 5/4/09

Computer: _____

Date: _____

Room Temp (C): 21.0

EMSL Analytical, Inc.

PLM7.9.0

Calibration Of Common RI Oils

Date:

4/17/09

RI Oil		CARGILLE GLASS		CENTRAL STOP DS						
N_D	Lot #	Labeled RI	Lot #	DS Color	λ_0	dN_D/dt	T_R	N_x	$N_D - N_x$	Accept or Reject
1.550	13619HI	1.550	C	BLUE	600	4.91E-04	19.0	1.549	0.001	ACCEPT
1.605	0701	1.600	B	BLUE	620	4.41E-04	19.1	1.601	0.004	ACCEPT
1.680		1.680	C	BLUE	600	4.75E-04	19.1	1.677	0.003	ACCEPT
1.700		1.700				4.80E-04			1.700	REJECT

From Su (1996) RI Oil Conversion Tables
Temperature Corrected

N_D =The Refracted Index the Manufacturer Calibrated for the Oil At 25° C

λ_0 = Associated wavelength of observed Dispersion Staining Color (from McCrone color chart)

dn_D/dt =The Change in Refractive Index per Degree Celsius from RI Oil bottle

T_R =Room Temperature at the Time of the Calibration in °C

N_x =The Refractive Index Measured During Calibration

Analyst:

V. Barrios 5/5/09
Signature / Date

